Prepared Remarks before the:

House Committee on Oversight and Government Reform,
Subcommittee on National Security and Foreign Affairs

"Oversight of Ballistic Missile Defense (Part 3):
Questions for the Missile Defense Agency"
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2154 Rayburn House Office Building

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Chairman Tierney, Representative Shays, distinguished Members of the Committee, I very much appreciate the opportunity to appear before you again to support your examination of the Department of Defense programs in missile defense.

I am a Senior Advisor to the non-profit Center for Defense Information, a division of the World Security Institute, a Washington, D.C.-based national security study center. To help insure our independence, the World Security Institute and the Center for Defense information do not accept any funding from the Federal government, nor from any defense contractors.

In 2005 and 2006, I served on the nine-member Defense Base Realignment and Closure Commission, appointed by President George W. Bush and nominated by House Democratic Leader, Nancy Pelosi.

Beginning in late 2004, I served on Governor Arnold Schwarzenegger's Base Support and Retention Council, from which I resigned to serve on the President's Commission.

From 1994 to 2001 I served in the Pentagon as Assistant Secretary of Defense and Director, Operational Test and Evaluation. In this capacity, I was principal advisor to the Secretary of Defense and the Undersecretary of Defense for Acquisition, Technology and Logistics on test and evaluation in the DOD. I had OSD OT&E responsibility for over 200 major defense acquisition systems including the present-day missile defense programs.

From 1959 to 1979, and again from 1981 to 1993, I worked at the Lawrence Livermore National Laboratory. Over those 33 years I worked on a variety of high technology programs, and retired from the Laboratory in 1993 as Laboratory Associate Director and deputy to the Director.

In my current capacity at the Center for Defense Information I am called upon to provide independent analysis on various defense matters. I have over 40 years of experience involving U.S. and worldwide military research, development and testing, on operational military matters, and on national security policy and defense spending.

Introduction

In my testimony two weeks ago, I raised a number of issues that the Congress should examine. They are:

1. The limited and inadequate technical and operational performance of the Ground-based Midcourse Missile Defense (GMD) system, and the lack of operational criteria by which the Congress can judge success.
2. Inconsistent and inaccurate information from the Pentagon with respect to system performance and the threat.
3. The lack of demonstrated performance of the GMD system against realistic threats involving decoys and countermeasures, as well as in common operational environments.
4. The cost.
5. The vulnerability of the GMD system to direct attack.
6. The successes of U.S. diplomacy, which have been our most effective missile defense, and
7. The ways in which missile defenses can undermine America's arms control and non-proliferation objectives.

In my testimony today, I expand on my earlier comments regarding the GMD program, on the proposed U.S. missile defenses proposed for Europe, and on the Airborne Laser, and add new comments regarding the Multiple Kill Vehicle (MKV) program.

Today I will only touch briefly on the Navy Aegis program, and do not discuss at all the THAAD program, the PATRIOT PAC-3, or the PATRIOT/MEADS Combined Aggregate Program (CAP), which I hope will be topics for future hearings and increased oversight and review by the U.S. Congress.

Mr. Chairman, former Senator Sam Nunn has said it best: "National missile defense has become a theology in the United States, not a technology."

As a result, U.S. missile defenses are being deployed without well-established operational criteria, and the Congress has no basis from which. to evaluate these missile defense programs.

The "Unsophisticated Threat"

The Missile Defense Agency (MDA) says that it can only defend against "an unsophisticated threat," that is, just one or at most two missiles from Iran (or North Korea), with no decoys or countermeasures.

Should you be expected to believe that Iran (or North Korea) would be reckless enough to attack Europe, or the United States, with a single missile - with no decoys or countermeasures - and then sit back and wait for the consequences? As we know, ballistic missiles have return addresses.

If Iran (or North Korea) were reckless enough to attack Europe or the U.S, they wouldn't launch just one missile, and if they launched several missiles with decoys and countermeasures, U.S. missile defenses couldn't deal with it.

Decoys and countermeasures are the Achilles Heel of missile defense. Shooting down an enemy missile going 17,000 mph out in space is like trying to hit a hole-in-one in golf when the hole is going 17,000 mph. If an enemy uses decoys and countermeasures, it's is like trying to shoot a hole-in-one when the hole is going 17,000 mph and the green is dotted with black circles the size of the hole. The defender doesn't know what to aim for.

In 1999 and in 2000, our Intelligence Community provided assessments that North Korea or Iran would soon know how to field decoys and countermeasures. [1]

From a target discrimination point of view, recent GMD flight intercept tests have been simpler and less realistic than the tests more than five years ago. None of the GMD flight intercept tests have included decoys or countermeasures during the past five years.

The GMD system has no demonstrated effectiveness to defend the U.S. or Europe, under realistic operational conditions.

In its FY-08 budget request the Pentagon acknowledged this, saying, "This initial capability is not sufficient to protect the United States from the extant and anticipated rogue nation threat."

The MDA budget also reveals that the MDA wants the proposed missile defenses in Europe to protect existing radar sites in Greenland and the United Kingdom, not first and foremost to defend Europe.

In the past five years, only two GMD flight intercept tests have been successful. Yet, the MDA must conduct about 20 additional, different flight intercept tests before it might be prepared for realistic operational testing. At that rate, MDA could need 50 years to be ready for realistic operational testing.

Developmental tests are still needed to show that the system can work at night, in bad weather, when the sun is shining in the wrong direction, when the enemy re-entry vehicle uses stealth, when more than one missile is launched by an enemy, and so on.

Proposed U.S. Missile Defenses in Europe

If, as proposed, the U.S. missile defense system for Europe is to defend both Europe and the U.S., this requires the system in Europe to handle BOTH intermediate-range ballistic missiles aimed at Europe and intercontinental missiles aimed at the U.S.

As such the proposed system in Europe must operate as both a mid-course system and a post-boost, ascent phase system.

This is something that the Ground-based Interceptors (GBIs) in Alaska and California cannot do, and which has never been demonstrated with GMD interceptors in any location.

To be effective with this dual mission, the proposed system must be able to demonstrate a capability that the prototype system in Alaska and California

has never demonstrated and cannot do from those locations.

The interceptors proposed to be located in Poland would be much closer to Iran than GBI interceptors in Alaska and California are to North Korea. This means the time available for response and engagement would be much shorter than the time available to intercept missiles from North Korea.

Such short timelines have never been attempted with the GMD system in a flight intercept test.

These shorter timelines would be stressing enough if the radar proposed to be located in the Czech Republic had adequate range to detect an Iranian missile launch as soon as it cleared the horizon. However, as pointed out by Dr. Gronlund in her testimony before this Subcommittee on April 16th, "recent technical analysis suggests that the radar's range is too short to provide track data or discrimination for long-range missiles launched from the Middle East toward the United States."

In addition, Iran could perhaps field intermediate range missiles more easily than ICBMs, and so to be effective the proposed European system might have to deal with several intermediate-range missiles fired at Europe, requiring multiple, simultaneous engagements by the proposed interceptors in Poland.

This capability has never been demonstrated through flight intercept tests with the GMD system.

Before deciding to fund the proposed system in Europe, the U.S. Congress should examine in considerable detail the results from future flight intercept tests that will attempt to demonstrate the capabilities described above, and review whether then the system has "demonstrated through successful, operationally realistic flight testing, a high probability of working in an operationally effective manner," as required by the FY-2008 Defense Authorization Act and as signed by President Bush. [2]

To match the near-term plans that the MDA has for beginning construction in Europe and for deploying U.S. missile defenses in Europe, these tests will need to be planned, scheduled, and conducted soon.

Recent MDA Claims Regarding Target Discrimination

Recently, the MDA has pointed out that there were five, early, flight intercept tests that used simple round balloons as decoys. The MDA Public Affairs Director has told the press that five successful intercept tests from 1999 to 2002 used the type of decoys we would expect "from countries such as North Korea and Iran." [3]

But the decoys in those tests did not resemble the target re-entry vehicle (RV).

With respect to those five early tests, the decoys used were round balloons, not ice-cream cone shaped like the mock target, and with much different infrared signatures.

MDA has asserted that North Korea or Iran would do exactly what MDA has

done, namely, use round balloons as decoys that had infrared signatures that were different from the RV, not balloons that resembled the RV in shape and/or signature.

If North Korea or Iran were to attack the United States, why would North Korea or Iran not try to confuse our missile defenses? Are we to believe that North Korea or Iran is smart enough to make balloons that are both larger and smaller than would be required to fool us, but not the proper size to fool us?

Do we believe that North Korea is smart enough to make a 1.7-meter diameter balloon that has a larger infrared signature than the target RV, but not a 0.6-meter diameter balloon that has the same infrared cross section as the target RV?

MDA has never done a GMD flight intercept test where the decoy or decoys resembled the RV in shape and/or infrared signature.

In a report issued on February 28, 2002, the GAO reviewed the technical challenges of conducting flight intercept tests with decoys that closely match the target, and explained why the MDA decided then to use decoys that did not resemble the target RV. [4]

Basically, the MDA and its advisors felt that such tests would be too stressing. why take the chance with tests that might fail?

Thus it is misleading for the MDA to suggest now that those early flight

intercept tests demonstrated the capability to discriminate real targets from well-matched decoys, or decoys that would be representative of what the Intelligence Community has assessed North Korea or Iran could field today.

Below is a tabulation of the five early tests to which the MDA has referred, including those that failed in the same time period. The numbers on the successful tests, 1 through 5, show which tests MDA is counting. The unsuccessful tests are not numbered.

1. IFT-3 Oct. 2, 1999

This test was successful.

The only decoy used in IFT-3 was the large 2.2-meter diameter balloon from IFT-1A and IFT-2. It had an IR signature six times higher than that of the mock warhead. Because the decoy was so much brighter than the mock warhead, the EKV saw it first. Once the EKV realized that the balloon's IR signature did not match up with the target data it had received prior to the test, the interceptor shifted to the nearby target.

IFT-4 Jan. 18, 2000

In this test the interceptor failed to hit the target. The failure to intercept was because the cryogenic cooling system of the EKV failed to cool the IR sensors down to their operating temperatures in time because of an obstructed cooling line.

The only decoy used was the single large balloon from the previous tests. Smaller balloons originally had been planned to be a part of IFT-4, but were dropped in an attempt to simplify the test (partially because of the Welch panel recommendations).

IFT-5 July 8, 2000

This test also failed. The failure to intercept was the direct result of the EKV not separating from the surrogate booster due to an apparent failure in

the 1553 data bus in the booster.

The decoy balloon did not inflate properly, causing MDA officials to decide to use a different decoy in the future.

2. IFT-6 July 14, 2001

This test was a repeat of IFT-5, but this time mostly successful. The prototype X- Band radar (XBR) used in IFT-6 did not process all the information it was receiving properly, causing it to falsely report that the interceptor had missed its target. If that had happened in a non-test situation, more interceptors would have been needlessly launched at the target to ensure a hit.

One large decoy balloon was used. This one was 1.7 meters in diameter, so it was slightly smaller than the large balloon used earlier as a decoy. This new decoy still had an IR signature much brighter (approximately three times) than that of the mock warhead.

3. IFT-7 Dec. 3, 2001

This test was successful. The only variable changed from IFT-6 was the target booster: instead of Lockheed Martin's Multi- Service Launch System, the Orbital Target Launch Vehicle was used.

The target set, a modified Minuteman ICBM carrying a mock warhead and a single decoy, did not change.

There was only one decoy in IFT-7, and it was the same one that was used in IFT-6.

4. IFT-8 March 15, 2002

This test was successful.

Three decoy balloons (one large, two small) were used to increase the difficulty of determining the target's location; however, critics pointed out that the infrared signals of the balloons differed from that of the mock warhead. The large balloon had a much larger infrared signature than that of the mock warhead, whereas the two small balloons had much

smaller signatures.

5. IFT-9 Oct. 14, 2002

This test was successful. IFT-9 is said to have included the same three decoy balloons (one large, two small) in its target cluster as were used in IFT-8, but the specifics are unknown as MDA classified decoy details in May 2002.

IFT-10 Dec. 11, 2002

IFT-10 failed when the Raytheon-built exo-atmospheric kill vehicle (EKV) did not separate from its booster rocket, a modified Minuteman ICBM that was being used as a surrogate until a more advanced booster rocket could be developed. The failure to separate precluded the EKV from attempting an intercept o the target missile. This was the first night test of the GMD flight test program, but because the intercept failed, the objective of IFT-10 to demonstrate effectiveness at night was not demonstrated.

Costs

It's not easy to keep track of what missile defense is costing the U.S. taxpayer.

The FY-09 the president's budget asks for $13.2 billion for DOD spending on missile defense. Two weeks ago I submitted testimony that the request for FY-09 was $12.4 billion. But as sometimes happens with the press, I missed about $800 million of proposed missile defense spending in FY-09.

Over the next five years, the DOD FY-09 budget request calls for $62.5 billion to be spent on missile defense.

In a House of Representatives hearing on Thursday, April 17, 2008, the

MDA budget request for FY-09 was said to add to $46 billion over the next five years. [5] However, that only counts those portions that are in the MDA budget, and not quite all of that. If you count all DOD missile defense spending it comes to $62.5 billion over the next five years. To be more exact, $47.6419 billion in the MDA budget plus $14.8439 that is for missile defense not in the MDA budget adds to $62.485 for the FYDP total.

If the Congress supports this, by the end of 2013 over $110 billion will have been spent since 2003, not counting prior spending in the previous decades.

Since there are no operational criteria established for the system, the Pentagon does not know what the eventual costs might be.

Costs are open ended and there is no end in sight.

The Vulnerability to Direct Attack

Two weeks ago I also pointed out that major elements of the U.S. missile defense systems are vulnerable to direct attack. For example, the floating Sea-based X-band Radar (SBX) is literally a sitting duck.

So are the early-warning radars in Greenland and in England, as would be the radar proposed to be sited in the Czech Republic.

The Pentagon does not explain it, but we need to remember that if we ever need to rely on missile defenses against enemy ICBMs, it would be in an all out nuclear war, Mushroom Clouds and all.

The Congress should examine whether missile defenses could be depended upon under those conditions.

The Successes of Diplomacy

Diplomacy has been our most effective missile defense. In my full statement two weeks ago, I described how in 1999 Dr. William Perry, and now more recently Ambassador Christopher Hill, have shown that effective diplomacy is hard to beat.

The U.S. proposal to site missile defenses in Poland and the Czech Republic has alienated Russia and upset the overall strategic balance to a degree not seen since the height of the Cold War. But the proposed U.S. system has no demonstrated operational effectiveness to defend Europe, nor the U.S.

Americans have a tendency to over-rely on technology as the first, best hope to solve our problems. With missile defense the United States has been trying for 60 years without success. Other approaches are needed.

The Multiple Kill Vehicle Program

To try to deal with enemy countermeasures the MDA is pursuing the Multiple Kill Vehicle program. Conceptually, the MKV is a set of smaller interceptors, that is, small kill vehicles, carried onboard a GMD Carrier Vehicle. [Potentially MKVs might be carried on the Kinetic Energy Interceptor or on Aegis interceptors, also.] If hitting a single target with a single interceptor is like hitting a bullet with a bullet, the MKV is like hitting a shotgun with a shotgun.

The MKV concept is "many on many," the idea being that the MKV will be able to carry as many small kill vehicles as the enemy would put up targets and decoys.

A difficulty is that each small interceptor must carry sensors, guidance, and propulsion systems, and these features add weight. For this reason the MKV interceptor may only carry a few small interceptors. Artist's renderings of the MKV show a dozen small kill vehicles, but in actual practice only a few small kill vehicles may be all that will fit.

The MKV is like hitting a shotgun with a shotgun when the defender's shotgun shell only has a dozen or fewer pellets. If the enemy launches more warheads, or launches more countermeasures and RV targets than the number of small kill vehicles the MKV can carry, the MKV will be overwhelmed. This would be an illustration of a lack of "cost effectiveness at the margin," discussed in my prepared testimony two weeks ago.

In prepared testimony before the Senate Armed Services Committee on April 1, 2008, the MDA Director explained the MKV as follows:

"In the years ahead we expect our adversaries to have midcourse countermeasures. The Multiple Kill Vehicle (MKV) program is developing a payload for integration on midcourse interceptors to address complex countermeasures by identifying and destroying all lethal objects in a cluster using a single interceptor."

The single interceptor referred to in the MDA Director's statement would be the Ground-based Interceptor (GBI), or something similar to the interceptors

now deployed in Alaska and California. Each GBI would carry a Carrier Vehicle that in turn would carry a number of small kill vehicles as described above. [6]

The MDA hopes to demonstrate MKV capability by 2017. [7]

Airborne Laser (ABL)

Since your hearing two weeks ago, the media has noted my suggestion that to defeat the Airborne Laser an enemy might use white paint as a countermeasure. For my testimony then I chose as a "countermeasure" a basic white paint to illustrate the approach an enemy might take to counter the ABL. I could have chosen other surface preparations that are even more reflective than white paint.

However, in an e-mail response the MDA Public Affairs Director wrote to Reuters, "That the U.S. would spend more than 4 billion on a weapon system that could be defeated by a coat of paint might make a good sitcom but has no basis in fact." [8]

It would have been more accurate if the MDA Public Affairs Director had written, "... spend more than $8 billion on a weapon system that could be defeated ... ...," rather than "... spend more than $4 billion on a weapon system that could be defeated ..." According to the GAO, if the Congress supports the MDA budget request through FY 2013 the ABL program would spend over $8 billion in 2008 constant dollars. The ABL was started in 1996 with the idea that it would take $1 billion and five years to take it to the point where it could demonstrate its capabilities, that is, shoot-down a

target. Instead, the program has been ongoing for twelve years with funding requested for it for at least another five years. [9]

If an enemy applies relatively simple countermeasures, the ABL will not be effective. For example, missiles painted with dark colors will absorb almost all of the laser energy and only 10% will be reflected. For missiles painted with an ordinary white paint, a white paint that is 90 percent reflective to the laser, 90 percent of the laser energy bounces off. Missiles with polished aluminum surfaces can reflect about 95% of the energy. Special coatings can raise reflectivity further, to 98% and more.

So by choosing white paint I wasn't trying to pick the most reflective surface coating that an enemy might employ, just something that would be doable by a country smart enough to build nuclear weapons, long-range guidance systems, and ICBMs.

Another "countermeasure" that will require more laser power in the ABL is if the enemy missiles rotate. As the enemy missile rotates the spot of the ABL laser would no longer being in the same place. Just as burning a leaf with a magnifying glass requires keeping the sun focused on one spot, the ABL will have a better chance of working if the enemy missile is not rotating. Since missiles tend to rotate anyway, this would take almost no effort on the part of an enemy.

Yet another countermeasure against the ABL would be an ablative coating that burned off the outside of the enemy missile. The ABL laser might burn the ablative blanket but not the missile inside.

A major question to be examined with the ABL is whether the output power of the laser can be expected to actually bring down an enemy ICBM, especially if the enemy employs simple countermeasures, such as white paint, and especially if the ABL aircraft flies at reasonably safe distances from the enemy where laser propagation through the atmosphere becomes an issue. Directing and focusing a high-powered laser beam through the atmosphere at a target is very challenging. The atmosphere itself interferes with and weakens the beam, and if the target is rotating, as missiles do, or is too reflective, the laser could bounce off without doing much damage. This is especially the case if the ABL is going to be sold for boost-phase defense where the laser must pass through the atmosphere to reach its target.

If an enemy missile is rotating, shiny, and reflects or sloughs off too much of the laser energy, to compensate for these effects, the U.S. Air Force would need a bigger laser, and possibly something bigger than a Boeing 747 in which to carry the ABL.

Considering such issues, how big does the laser have to be and how long does the laser have to stay focused on an enemy target to kill it? If the enemy missile is rotating in flight, as missiles do, what happens then?

What is the range of the laser under realistic operational conditions, and won't that require that the ABL aircraft to fly too close to the enemy? A stretch 747 makes a big target.

And how many times can the ABL fire its laser before it has to go back to

base for new chemicals? A recent Congressional Research Service report pointed out that the ABL "would likely not have chemical replenishment capabilities, which would necessitate return flights to the United States if the laser is used." Thus, the CRS says, the "enemy could wait until an orbiting ABL is being refueled, or is absent before initiating a missile attack." [10]

Also, when and how exactly is the MDA going to do the first "shoot down" demonstration? Reportedly, the first "shoot down" is to be with a missile silhouette painted on the side of another airplane.

Other major questions have to do with whether the ABL can be effective under realistic operational conditions.

To keep one 747 in the air within range of an enemy missile launch site 24/7, the Air Force would need multiple ABL aircraft, all carrying big lasers. Those aircraft would need to fly close to enemy territory, where they would be vulnerable targets themselves. And if the enemy can launch more than one missile, the chemicals that power the lasers carried on board those 747s would quickly be exhausted.

The Pentagon had planned to purchase seven ABL aircraft, though now the plan is that no production would take place until the second ABL is tested. Maintaining a full ABL orbit would require at least five aircraft and maybe seven. Seven could be required so that one can always be on station 24X7, hovering off the coast of North Korea, say, while the others are in transit, being repaired, etc.

The MDA claims one ABL orbit can defend against all launch points in North Korea, but that means one ABL that maintains station presence 24x7x365, again requiring many aircraft. Also the MDA acknowledges that larger countries, such as Iran, would require more than one orbit and many more costly ABL aircraft.

MDA estimates it will spend a total of $5.1 billion on the first ABL aircraft through 2009. However, the Pentagon decided not to purchase enough aircraft to cover even a single enemy missile launch site. This indicates that the Pentagon does not think the ABL is ready for procurement and that much more research and development is needed.

The ABL program office has provided information to the CBO for its budget estimate to Congress. CBO arrived at an estimate of $1.5 billion per production aircraft. The Air Force Air Combat Command had proposed that the Air Force would buy 7 production aircraft, but the Pentagon did not support that. The plan now is that MDA will "build" the first two prototypes, before Boeing goes into production. The ABL program office has estimated that each aircraft will take "a couple of years" to build. Seven aircraft at $1.5 billion each equals $10.5 billion. That's a lot of money, and it wouldn't be surprising if the price has gone up since. If it takes two years (conservatively) to build each one, it will take the Air Force 14 years to get the first fleet if they budget for one per year.

If everything goes well, this means they might not have a full fleet until 2025, which doesn't make sense if the MDA believes we have a justifying threat from North Korea today.

The ABL program needs to be restructured with plans for production put way back on the back burner.

In my testimony two weeks ago, I commented that there is much misinformation about missile defense, and the ABL is no exception. For example last year, The Missile Defense Advocacy Alliance put out a press release which said:

"A mobile laser at high altitude that can take multiple shots at the speed of light is an unmatched defensive capability to defeat accelerating ballistic missiles that have thousands of pounds of explosive propellant in their first few minutes of flight. Within a second, a directed energy laser beam can penetrate the outer and protective skin of a ballistic missile, burning it through completely and halting the flight of the ballistic missile. The ability to destroy missiles in their boost phase, eliminates the concern of multiple, advanced warheads that ballistic missiles may carry. This further demonstrates the technical ability and philosophy to eliminate offensive ballistic missiles." [11]

What the MDAA writes is an example of the misunderstandings behind this program, namely, that "a directed energy laser beam can penetrate the outer and protective skin of a ballistic missile, burning it through completely and halting the flight of the ballistic missile."

The ABL is not actually designed to burn through the outer skin of an enemy ICBM; that takes way too much power. Instead the plan has always been that the laser would weaken the outer skin such that it might fail during launch acceleration, something that still remains to be demonstrated.

Even then, the ABL still might not "halt the flight" of an enemy missile or its warheads, since they might already be well on their way to the target.

Another thing to be examined is whether the ABL is so complex that it will be undependable in battle.

Safety issues also should be examined. The crew will not be able to access the laser in flight, as the pilots and crew will be behind a protective barrier for their safety. A chemical leak in flight would be a problem for the crew, but they may not know about a leak until they land which could be too late.

Aegis BMD

With respect to the Aegis system I give the Navy credit for making the most with what they have. The Navy has refrained from making exaggerated claims about Aegis and has worked steadily to increase the operational realism of their flight tests. The current SM-3 missile is too slow, so the Navy has set up their flight intercept tests to be within range of the interceptors they have. The Aegis BMD system faces many more flight intercept tests before it will have demonstrated the capability to defend the U.S., Japan or other territory from enemy attack under realistic operational conditions. The Navy still faces significant obstacles, not the least of which is developing a new, faster interceptor and beginning to deal with countermeasures.

The U.S. Aegis BMD system has achieved twelve successful intercepts out of fourteen attempts. The most recent flight test intercept by a U.S. ship occurred on November 6, 2007 and was a success; the most recent (and

only) flight test intercept by a Japanese ship occurred on Dec. 17, 2007, and also was a success. However, the primary cause of an earlier Aegis flight test failure - the Solid Divert and Attitude Control System (SDACS) – still is not being tested in its most advanced mode, and needs to be tested to demonstrate maneuverability against more demanding targets.

The Navy has a tradition of doing quite realistic tests with new, developmental systems at sea, and this tradition has carried over to its missile defense work. Nevertheless, missile defense is one of the most challenging programs the Navy has ever tried to develop and it won't get any easier as the program moves forward.

An exception to my comment above regarding Aegis eschewing exaggerated statements has been the claims made following the Aegis shoot down of an NRO satellite last February. As impressive as that was on many fronts, it was not a demonstration of Aegis BMD missile defense effectiveness. You needn't take my word for it.

As Vice Chairman, Joint Chiefs of Staff, Gen. James Cartwright explained forthrightly in a recent interview, the satellite shoot-down did NOT prove anything about the dependability of U.S. missile defenses. [12]

Conclusion

The DOD Missile Defense Agency programs need to be reestablished as bona fide R&D programs, as they are presently purported to be, but are not.

The Congress and the American taxpayer are being misled about the

capability of these programs, both in terms of their effectiveness to provide dependable defenses, and in term of their readiness for procurement.

The MDA programs have become large procurement programs masquerading as R&D programs, with hundreds of new interceptors, not to mention scores of other systems, subsystems, and support facilities proposed to be bought between now and 2013.

Through these large procurements, the American taxpayer is being misled that these systems defend the United States when they do not, and our friends and allies in Europe are also being misled that the proposed U.S. missile defenses there would defend Europe as well.

This is all the more troublesome, as these programs have no demonstrated effectiveness against realistic threats and under realistic operational conditions.

This applies to the GMD program in Alaska and California, to the new missile defense system proposed for Europe, the Multiple Kill Vehicle program, and especially to the Airborne Laser program.

Several other programs also require increased oversight and review by the U.S. Congress, including the Aegis BMD program, the THAAD program, and also the PATRIOT PAC-3 and PATRIOT/MEADS Combined Aggregate Program (CAP).

End Notes

[1] Statement for the Record to the Senate Foreign Relations Committee on Foreign Missile Developments and the Ballistic Missile Threat to the United States Through 2015, by Robert D. Walpole, National Intelligence Officer for Strategic and Nuclear Programs, September 16, 1999.

[2] H.R.4986, National Defense Authorization Act for Fiscal Year 2008 (Enrolled as Agreed to or Passed by Both House and Senate)

SEC. 226. LIMITATION ON AVAILABILITY OF FUNDS FOR PROCUREMENT, CONSTRUCTION, AND DEPLOYMENT OF MISSILE DEFENSES IN EUROPE.

[3] Letter to the Editor, Boston Globe, Rick Lehner, U.S. Missile Defense Agency, Washington, DC., April 11, 2008.

[4] GAO-02-124, *Review of Results and Limitations of an Early National Missile Defense Flight Test,* issued in February 2002.

[5] HEARING OF THE STRATEGIC FORCES SUBCOMMITTEE OF THE HOUSE ARMED SERVICES COMMITTEE;
SUBJECT: 2009 DEFENSE BUDGET, MISSILE DEFENSE PROGRAMS;
CHAIRED BY: REPRESENTATIVE ELLEN TAUSCHER (D-CA);
WITNESSES: JOHN YOUNG, UNDERSECRETARY OF DEFENSE FOR ACQUISITION, TECHNOLOGY AND LOGISTICS; CHARLES MCQUEARY, DIRECTOR, OPERATIONAL TEST AND EVALUATION, DEPARTMENT OF DEFENSE; LIEUTENANT GENERAL HENRY OBERING, U.S. AIR FORCE, MISSILE DEFENSE AGENCY; LIEUTENANT GENERAL KEVIN CAMPBELL, U.S. ARMY, SPACE AND MISSILE DEFENSE COMMAND, U.S. STRATEGIC COMMAND;
LOCATION: RAYBURN HOUSE OFFICE BUILDING, WASHINGTON, D.C., Thursday, April 17, 2008.

[6] Testimony, Lieutenant General Henry A. Obering III, USAF
Director, Missile Defense Agency
Missile Defense Program and Fiscal Year 2009 Budget
Before the Senate Armed Services Committee

[7] Defense Acquisitions, Progress Made in Fielding Missile Defense, but Program Is Short of Meeting Goals. GAO-08-448, March, 2008.

[8] Reuters, April 17, 2008.

[9] HEARING OF THE STRATEGIC FORCES SUBCOMMITTEE OF THE SENATE ARMED SERVICES COMMITTEE; □SUBJECT: BALLISTIC MISSILE DEFENSE PROGRAMS IN REVIEW OF THE DEFENSE AUTHORIZATION REQUEST FOR FY2009 AND THE FUTURE YEARS DEFENSE PROGRAM; □CHAIRED BY: SENATOR BILL NELSON (D-FL); □WITNESSES: JOHN YOUNG, DEFENSE UNDERSECRETARY FOR ACQUISITION, TECHNOLOGY AND LOGISTICS; GENERAL HENRY OBERING III, DIRECTOR OF THE MISSILE DEFENSE AGENCY; GENERAL KEVIN CAMPBELL, COMMANDING GENERAL OF THE ARMY SPACE AND MISSILE DEFENSE COMMAND; CHARLES MCQUEARY, DIRECTOR OF OPERATIONAL TEST AND EVALUATION AT THE DEFENSE DEPARTMENT; PAUL FRANCIS, DIRECTOR OF ACQUISITION AND SOURCING MANAGEMENT AT THE GOVERNMENT ACCOUNTABILITY OFFICE; □LOCATION: 232-A RUSSELL SENATE OFFICE BUILDING, April 1, 2008.

[10] Congressional Research Service, Airborne Laser (ABL): Issues For Congress, CRS RL-32123, Update July 9 , 2007.

[11] See "Blinded by the Light," Press Release by the Missile Defense Advocacy Alliance, June 22, 2007.

[12] "DOD News Briefing with Gen. Cartwright from the Pentagon February 21, 2008:

Presenter: Vice-Chairman, Joint Chiefs of Staff Gen. James Cartwright