[H.A.S.C. No. 110–31]

THE POSTURE OF THE U.S. STRATEGIC COMMAND (USSTRATCOM)

HEARING

BEFORE THE

STRATEGIC FORCES SUBCOMMITTEE

OF THE

COMMITTEE ON ARMED SERVICES
HOUSE OF REPRESENTATIVES

ONE HUNDRED TENTH CONGRESS

FIRST SESSION

HEARING HELD
MARCH 8, 2007

U.S. GOVERNMENT PRINTING OFFICE
37–317 WASHINGTON : 2008

For sale by the Superintendent of Documents, U.S. Government Printing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512–1800; DC area (202) 512–1800
Fax: (202) 512–2104 Mail: Stop IDCC, Washington, DC 20402–0001

STRATEGIC FORCES SUBCOMMITTEE

ELLEN O. TAUSCHER, California, *Chairman*

JOHN SPRATT, South Carolina	TERRY EVERETT, Alabama
SILVESTRE REYES, Texas	TRENT FRANKS, Arizona
RICK LARSEN, Washington	MAC THORNBERRY, Texas
JIM COOPER, Tennessee	MICHAEL TURNER, Ohio
HANK JOHNSON, Georgia	MIKE ROGERS, Alabama
DAVID LOEBSACK, Iowa	

ERYN ROBINSON, *Professional Staff Member*
KARI BINGEN, *Professional Staff Member*
JASON HAGADORN, *Staff Assistant*

CONTENTS

CHRONOLOGICAL LIST OF HEARINGS

2007

THURSDAY, MARCH 8, 2007

THE POSTURE OF THE U.S. STRATEGIC COMMAND (USSTRATCOM)

STATEMENTS PRESENTED BY MEMBERS OF CONGRESS

WITNESSES

APPENDIX

THE POSTURE OF THE U.S. STRATEGIC COMMAND (USSTRATCOM)

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
STRATEGIC FORCES SUBCOMMITTEE,
Washington, DC, Thursday, March 8, 2007.

The subcommittee met, pursuant to call, at 3:02 p.m., in room 2118, Rayburn House Office Building, Hon. Ellen Tauscher (chairman of the subcommittee) presiding.

OPENING STATEMENT OF HON. ELLEN O. TAUSCHER, A REPRESENTATIVE FROM CALIFORNIA, CHAIRMAN, STRATEGIC FORCES SUBCOMMITTEE

Ms. TAUSCHER. The hearing will come to order.

First, before we begin the hearing, I would like to acknowledge the presence of our distinguished Ranking Member, Mr. Everett of Alabama.

And I know that I am speaking not only for myself and my family, but my constituents in California and the American people. We want to wish our condolences to Mr. Everett for the tragedy that occurred in his district when the tornado struck just last week resulting in the loss of his constituents and friends from his constituency. And we want to offer him our condolences, and condolences to the families in his constituency.

Mr. EVERETT. And I thank my friend and colleague.

And thank you for your remarks, General Cartwright.

And the other colleagues in the Congress that have mentioned it, thank you.

Ms. TAUSCHER. Today, the Strategic Forces Subcommittee meets to receive testimony from General James Cartwright, Commander of United States Strategic Command (USSTRATCOM).

General, thank you, again, for being here.

This hearing is an important opportunity for the subcommittee to consider the posture of our Nation's strategic forces. Nuclear weapons have and will continue to play a central role in deterring threats to the United States and our allies.

However, today, we face significant choices on the role and size of our strategic forces to meet evolving threats from nation states and terrorist groups.

We also have to consider new threats to our space assets and cyber-systems, particularly in light of China's recent anti-satellite (ASAT) test. It is imperative that our military capabilities adapt to these new threats and address possible vulnerabilities.

General Cartwright, I am grateful that you agreed to appear here today to discuss these matters. Your service to our country is

second to none. As STRATCOM Commander, you have one of the broadest job descriptions in the military.

STRATCOM merged with U.S. Space Command in 2002 and, just a year later, was assigned four additional mission areas: global strike; missile defense integration; information operations; and global command, control, communications, computers, intelligence, surveillance, and reconnaissance. Like you, my concern is to ensure that all of these missions and tools fit together seamlessly.

Since 9/11, U.S. strategic posture has changed significantly. The Bush Administration's Nuclear Posture Review (NPR), released in 2002, proposed a change in paradigm from the Cold-War nuclear TRIAD of intercontinental ballistic missiles (ICBMs), submarine-launched ballistic missiles (SLBMs), and bombers to a new TRIAD composed of both nuclear and non-nuclear offensive-strike systems, both active and passive defenses, and responsive infrastructure.

The Quadrennial Defense Review (QDR), completed in 2006, built upon these changes by calling for a wider range of non-kinetic and conventional strike capabilities while maintaining a robust nuclear deterrent.

A conventional global strike capability that can hold fleeting targets anywhere in the world at risk is a powerful concept. But there are a number of important questions that need to be answered before moving forward with any particular program.

Specifically, in last year's defense authorization bill, Congress expressed concerns about the proposed Conventional Trident Modification Program's concept of operations (CONOPS) and assurance strategy.

General, I would be interested in hearing your views on the issues raised by the Congress in the fiscal year 2007 Defense Authorization Act.

I strongly believe that we a need a public debate on the nature of strategic deterrence and the role of nuclear weapons.

General, as you know, I believe that finding ways to prevent the spread and possible use of nuclear technology, material and weapons is at least important as the future of the nuclear arsenal. And I know you recognize that these two issues are intimately connected.

Today, I would like to hear your perspective on how we will ensure strategic stability in the future and prevent nuclear terrorism.

Finally, I would be interested in your thoughts on how we might expand the public debate on these issues.

One of the key issues before us today involves the nuclear arsenal, and it is called the Reliable Replacement Warhead Program (RRW). While the recently announced RRW proposal would not—would not—have new military characteristics—and I do not consider it to be a new weapon—I am still seeking more information about this program.

We must ask, first and foremost, do we really need a significant modernization of our existing nuclear capabilities, particularly in light of the recent plutonium ageing study which found that plutonium pits have a lifespan of 85 years or more.

In particular, what current or planned programs would be foregone as a result of RRW? Will the reliability improvements promised by RRW allow us to significantly reduce the size of our nuclear

arsenal? Will it require live testing of the nuclear component of the weapon? Will the RRW program ultimately reduce production costs within the nuclear weapons complex?

And I would also like to know how you believe the recent plutonium-ageing study will impact plans for and the cost of the pit facility.

These are the types of in-depth questions we will be asking in the days ahead.

While a great deal of attention has been paid to RRW recently, Congress has made no decision to build RRW, nor will we make a decision in this budget year. A baseline design has been selected for further study. Only after detailed design work, and development of a cost, scope and schedule plan, will Congress face the decision to proceed to engineering work. Nonetheless, I look forward to hearing your perspective on the Reliable Replacement Warhead program.

Another aspect of our strategic posture which needs attention are threats to our space-based assets and infrastructure, the recent Chinese ASAT test being the case in point.

It is my understanding that you believe that the most important action we can take now is to expand our Space Situational Awareness (SSA) capabilities. I am concerned these activities have not received the appropriate consideration and resources in the past, due to emphasis on rapid deployment of transformational space platforms, such as Space Radar and Transformational Satellite (TSAT) Communications.

General, I would be interested in your thoughts about the level of resources required to improve our Space Situational Awareness capabilities.

I have similar concerns with regard to missile defense. I believe the Missile Defense Agency (MDA) has been too focused on research and development (R&D) activities at the expense of meeting our near-term requirements for our warfighters. One of my key priorities as chairman is to ensure that our Nation's warfighters receive the capabilities they need to successfully conduct global missile defense operations.

In January 2002, then-Secretary of Defense Rumsfeld exempted the Missile Defense Agency from the traditional Department of Defense (DOD) requirement process, which effectively removed the warfighter from playing a major role in the development of the missile defense system.

STRATCOM and the Missile Defense Agency have sought to correct this problem through the creation of the Warfighter Involvement Program, which I was briefed on recently.

General Cartwright, I am interested in hearing your thoughts as to whether you are satisfied with the current role that STRATCOM and other combatant commanders are playing in decisions affecting the missile defense development process and future force structure.

With that, General Cartwright, I would also like to thank you, again, for being here today, and I look forward to your testimony.

Let me, right now, recognize my very good friend and colleague, the distinguished Ranking Member, Mr. Everett.

Mr. Everett.

STATEMENT OF HON. TERRY EVERETT, A REPRESENTATIVE FROM ALABAMA, RANKING MEMBER, STRATEGIC FORCES SUBCOMMITTEE

Mr. EVERETT. Thank you very much, and I appreciate the earlier words from my chairman and friend.

First and foremost, I would like to echo the chairman's comments and thank General Cartwright for appearing before us today. We have had several opportunities this year to meet with you, and we appreciate each time you come back.

We also know that you have a staff of dedicated professional men and women working 24–7 to support STRATCOM's missions. We are grateful for the job that you and your staff perform—and what you have done for the Nation.

As the first Marine officer to lead STRATCOM, you have brought your get-it-done mindset to the command and broken down barriers to getting the job done.

Under your commendable leadership, I have seen STRATCOM transform the way it does business. Your innovations have brought operators, intelligence analysts and decision-makers together in real-time to share information.

As the chairman remarked, this is an important hearing for our subcommittee. Our Nation's strategic posture serves as a framework for identifying the composition of our strategic forces and the capabilities that are needed.

During the Cold War, our deterrent strategy and strategic posture was rather simple and focused, ensuring mutual shared destruction by possessing a survival second strike nuclear capability.

The Pentagon's 2006 Quadrennial Defense Review recognized that today's threats are markedly different and require tailored deterrence, but STRATCOM must remain a strong nuclear deterrent.

It also must posture itself with wide-ranging capabilities to address new security challenges that include non-state terrorism networks, which are undeterred by traditional strategic bombers and nuclear weapons; rogue nations like North Korea and Iran, who are pursuing missile and nuclear capabilities and proliferation; and advanced military power like China, who, unofficially, advocates asymmetric warfare.

I expect you to talk about these challenges and how they have affected STRATCOM's missions, strategic posture and pursuit of new capabilities.

There are several key issues germane to the Nation's strategic posture in the areas of space, missile defense and nuclear forces that I would like to ask you to discuss today.

In the space arena, I am most concerned about our ability to protect our space assets. China's recent anti-satellite test was clearly a shot, in my estimation, across the bow.

However, it is only one of several capabilities that China and others are developing, which pose a serious threat to U.S. space assets.

To the extent you can discuss this in an open forum, I would appreciate your thoughts on the warfighter's space protection and survivability needs and how this event might influence the composition of our future space forces and architecture.

Commanders, in previous testimonies, have stated their need for more missile-defense inventory to keep pace with the threat. Just yesterday, the Pacific Command (PACCOM) and U.S. forces career commanders made a similar statement.

I would like your assessment on how well the combatant commanders' need for missile-defense capabilities and operational support is being met and whether opportunities for improvement exist.

In 2006, this committee drafted and enacted, with bipartisan support, legislation setting forth the objectives of a Reliable Replacement Warhead.

I continue to strongly support RRW and the means to achieving a safer, more secure, and more reliable nuclear weapon for our strategic forces.

General, as the agent responsible for the operational readiness of our Nation's nuclear forces, please explain why you have greater confidence in RRW, over the long term, than Life Extension Programs (LEPs).

Additionally, though it is still very early in the design phase, there will be future decisions on RRW—quantity, legacy, stockpile, life extensions, and—and delivery systems or modernizations. Please comment on these moving parts and discuss any force structure STRATCOM has.

Last, I would like to say I would appreciate a discussion of gaps or shortfalls in challenges you face in the areas of intelligence, command, control and communications, and particularly cyberspace.

STRATCOM is truly a global command with a breadth of missions befitting that global scope.

General, thank you, again, for your leadership and service, at this time of great transition in our Nation's strategic forces, our position and capabilities. I look forward to your testimony.

And, again, I thank our chairman for calling the hearing at this particular time. Thank you.

Ms. TAUSCHER. I thank the ranking member.

General Cartwright, the floor is yours. You have submitted significant and very comprehensive testimony way before the deadline. You are not meant to do that, by the way. It is meant to be late like everybody else's is. [Laughter.]

But we have thoroughly reviewed it. But we are interested if you would like to talk to us extemporaneously, answer some of the questions we have put forward.

We are happy to take your testimony. The floor is yours.

STATEMENT OF GEN. JAMES E. CARTWRIGHT, COMMANDER, U.S. STRATEGIC COMMAND

General CARTWRIGHT. Thank you, Madam Chairwoman and Congressman Everett.

I, too, would like to acknowledge we have had a series of briefings back and forth at the staff levels and at the member levels for individual issues and for more comprehensive reviews. And that has been very valuable in framing this discussion, number one.

And, number two, it also acknowledges the fact that things don't just happen in the spring, that we have engagement all year long, and that it is important to keep that dialogue going. And it is probably one of the more valuable things, particularly for something in

the strategic side with both significance to the country and the regret factors if we get it wrong. Having a continual dialogue is critical to this activity.

I will keep my comments very short here, because I would like to spend the time responding to you all. But just to go back over a few things: deterrence—and I think it has been framed very well by both of the opening comments—the breadth and the scale of the activities that have emerged since 2001 are significant. And our ability to stay ahead of those threats and to actually affect and deter has been challenged.

As was mentioned, we have moved from the old strategic TRIAD construct of the bombers, the submarines, and the Intercontinental Ballistic Missiles (ICBMs) to one that is more integrated and offers the country a broader range of activities that can deter and assure our allies, and this is critical.

The idea of having an offensive capability, a defensive capability that is balanced and can be tailored within the region, bounded by the lessons that we have learned in the conventional forces on a responsive infrastructure, so that—similar to what we experienced in the first Gulf War, when we built mountains that were called iron mountains—rather than doing management by inventory, to get to a responsive infrastructure that allows us to adapt, to respond to operational and technical surprises, and to not manage by inventory is critical in how we move forward in our strategic capabilities, because these are expensive capabilities.

If we put them together, many times, some of the programs that have been brought forward in space, in the strategic side of our weapons and in our platforms, have oftentimes been guilty of being legacy before Initial Operational Capability (IOC). And we have got to find a way to respond to a threat that lives in an age that is more driven by Moore's Law than by the industrial constructs that we have often worked against.

So I look forward to the opportunity to start to understand where we can get this leverage, where we can adapt and be responsive, because, quite frankly, our crystal ball is no better than anyone else's. We can make mistakes. We can be surprised. And we have got to acknowledge that fact in our strategy.

And so having a balanced offense/defense infrastructure underpinned by command and control and intelligence, surveillance and reconnaissance (ISR) is critical to the strategy.

The command has set up components. We did this very differently than the standard model. This command was about 4,000 man years when we started this activity. We have reduced that significantly, moved those authorities and resources out to the components to allow the organization to flatten out to handle these global challenges. And the scale and the magnitude and the number of transactions that are part of an activity like that are significant. And to bring that into one headquarters would really be unwieldy for the Nation, and our ability to stay ahead of our adversaries would be questionable.

This is a different construct. For instance, in my intelligence, surveillance and reconnaissance component, rather than build one from scratch, the commander of the Defense Intelligence Agency

(DIA) is my commander of ISR; the same for the cyber side, we used the commander of the National Security Agency (NSA).

Rather than building new constructs, build ones that can be joint from the start, can move to a combined or allied type of configuration when it is appropriate, and for which we have existing partnerships, centers of excellence, relations with industry, relations with the rest of the interagency already built in, so that we don't have to build those at the time of crisis. We grow those. We train in that configuration and it is essential.

They also have the ability to define requirements, resource appropriate activities and manage acquisition in a way that this headquarters does not and cannot, and should not be tied down with. Okay?

So it is a very different construct, and it is worth watching. It is worth understanding where value is gained in it, and it is worth questioning where maybe there isn't value.

We are about two years into a three-year endeavor to put that together. The reason we took three years was to ensure that we did not disrupt families. So we stayed in the three-year military rotation cycle.

So the third tranche of people and resources will move this year to make these components hold. All of them have declared initial operating capability. And all of them will declare full operational capability probably some time toward the end of this year. And so they have moved along, both in their credibility and their capability as we have stood these commands up.

On the offensive side—and I am just going to step through a couple of highlights on the TRIAD, just to frame some issues and respond quickly to a few that were highlighted in the comments—we look at three areas here. And Marines tend to deal in threes. So triangles work out for us.

But in the offensive side of this, the nuclear-strike capabilities framed in the Moscow Treaty, which is drawing us down significantly from 2001 through 2012, with 2007, this year, being an evaluation half point. How are we doing? Is it working?

Now, the reductions between 2000 and 2012 were to be commensurate with increases in capability in the other areas, and so what I am here to report about is how well have the other areas moved in response to the planned reductions? And where are we in that drawdown?

And I will tell you that we are well ahead of schedule at the midpoint, that because of the capabilities that have been demonstrated on the conventional side of the house and the capabilities that we have demonstrated in the defensive side—and I will talk to each one of those—we have elected to take additional risk and draw down quicker to free up resource, so that we don't have to ask for resource to do things like, Reliable Replacement Warhead, the Complex 2030, that is associated with revitalizing the national infrastructure associated with nuclear weapon production. Those things are critical in order to be able to move forward, and we have to pick and choose.

What is nice here is that we have got offensive capabilities and defensive capabilities against which to manage the risk. And so I will step through those.

On the conventional side, the fielding of what has been called the J-coded weapons, but the GPS-guided J–DAM, the J–SOW, which is a glide-type weapon, and the newly-emerging two cruise missiles, one being sea-launched and one being air-launched, have really given us a significant amount of offensive capability and precision and survivability under stressing threats, and otherwise, that have put us in a position that our conventional forces are second-to-none.

Where we have a hole, where we have a gap is in the prompt global strike (PGS) side of the equation. And the chairman identified this in her comments. But, today, for those high-regret factors, fleeting targets that we would want to address, we only have a nuclear weapon as an alternative.

And in the diverse threats that we deal in, that is not necessarily appropriate across the spectrum of threat, and we really need to be able to provide a capability for the Nation below the nuclear threshold that can address these fleeting high-value, high-regret factor type threats.

And we can talk more about some of the issues that emerged in the discussion last year—I am happy to do that—and how we are trying to move forward in that area, but I see that as a scene that is causing us undue risk.

Now, the question is, when do you match up the threat with the capability? How early do you want to have it? How much of a deterrent value does this conventional capability bring to the table, so that if you bring it out earlier than the threat, it prevents or at least inhibits the adversary from fielding the threat?

Those are the questions that ought to be asked. Again, my crystal ball is no better than anybody else's, but I will give you my best advice on that.

I am sorry; I forgot the non-kinetic side of this on the offensive weapons. Suffice it to say that we have stood up a component with the National Security Agency. And for me, and for the Nation, our judgment was that the center of excellence for working in this environment is going to be where the Nation has its highest concentration of cryptologists, mathematicians and computing power, and that is the National Security Agency. It is today, and it is likely to be into the future.

We need to encourage the national lab system to start to bring to the table the intellectual underpinning for the R&D and future concepts that are going to dominate the cyber environment.

But for the Nation, the bulk of our transactions in the commerce side of the house and in just general business are occurring on these networks. Our competitive edge lives on these networks. This Nation's ability to compete internationally lives on these networks. Our military capabilities live on these networks.

We must understand this environment. We must have access to this environment. And we must be able to protect our interests in this environment. It is not drastically different than the sea or the air or space. And we have to start to understand and organize ourselves to be able to operate in this environment.

And I think that we are on a footing to move in that direction organizationally and with the intellectual underpinning. But we have got to bring a more holistic approach. We have got to be able

to integrate ourselves with industry, as appropriate, with Homeland, with the Department of Energy (DOE), all of these organizations—Justice. All have equities in this area.

The paradigms that have been established in policy and law are sufficient. We may want to tweak them a little bit, but they give us a good guidepost to go out and start understanding how to operate in this medium, and then understand where we might be challenged and come back to you all and explain that. And I will be happy to have a more detailed discussion, but that would probably have to be in a closed session, and we can do that at a future date.

On the defensive side, missile defense. Missile defense has emerged over the past year in the relationship that has been established between Strategic Command and our component integrated missile defense with the Missile Defense Agency. And the test programs have moved to a much more successful footing, technically, because MDA has done a great job.

Operationally, because we have integrated the warfighter into the test programs, started to drive the program in a direction that is more appropriate for fielded capabilities—in other words, the warfighter involved in the Warfighter Improvement Programs and information programs—and started to drive this in a direction that gives us an operational capability.

This year, we are in a configuration to be able to do operational work. We demonstrated that through an extended period of time around the Fourth of July, when the North Koreans fired off several missiles. We stayed in an operational configuration for an extended period of time. The system worked well. We learned a lot.

The system can be moved to an operational configuration anytime. It will be the end of this year before we are in a position where we can concurrently do R&D and development work along with sustained operations. And that is our goal, is to drive the system to that posture.

The focus this year that we are driving MDA toward is the part of the capability—when we talked about this capability, it was against rogue states to defend the Nation, but it was also for forward-deployed forces, allies and friends. Forward-deployed forces, allies and friends is the focus this year. We have got to start to understand how to move out.

The good news is we have many allies who want to participate in this capability, who want to understand how to use it. The credibility against an emerging, proliferating threat of ballistic missiles—particularly short- and medium-range—their quick reaction times are things that threaten nations.

To give them the capacity, both to stand on their own feet and to integrate with us or anyone else to build layered and mutual defenses, is where we want to end up in this capacity. And driving toward that is going to be essential.

The key R&D test points, many of them will occur this year. And we must watch those. We must drive those. But that is where the next real leverage point will come in missile defense. And we ought to be watching that this year.

The other piece of defense that I think is absolutely critical in understanding how we can start to take the pressure off of a strategy that was focused purely on nuclear weapons for deterrence is

in the counter-proliferation, non-proliferation side of the house, also in our mission area and starting to work in those areas to expand our capability out.

Part of the strategy that we are advocating at STRATCOM is that we generally look at conflict in five phases, zero through five. So—Marine math, it is really six, but zero through five.

And the idea here is that zero and one are pre-conflict. And that is where you want to win. That is where you want to be most effective. And, heretofore, we have not done as good a job as we could, particularly at STRATCOM, on focusing on zero and one.

The capabilities like missile defense, the capabilities like working in non-proliferation and counter-proliferation focus on phases zero and one in the conflict, trying to prevent it. The better you are at that, the less you need in your stockpile of offensive capabilities.

They ought to reinforce each other. They ought to be able to be tailored for the region, so the problems that we may face in Southeast Asia versus Southwest Asia, North—you pick the region. We ought to be able to tailor a balance between offense and defense in the tools we use. And counter-proliferation, non-proliferation capabilities offer us a wide range of opportunities to do that. And we have got to focus in that area.

The other piece here in the defensive side that I think is important to understand is the defense of our networks and how we are going to move to defend our networks and defend the activities on our networks, both at home and abroad.

And, today, you know, bless it, but the Internet was really designed around the terminals. Everything was designed around protecting the terminals. We put firewalls and patches in our terminals, in our computers, in our servers, et cetera.

We have got to start to look and not walk away from that, but we have got to start to expand out our awareness of the networks, so that we know what is going to attack our terminals before the attack occurs, so that we can configure them in a way that makes sense. That is a difficult technical problem, but not beyond the reach of this country and its intellectual capital. We have got to start to do that.

The day when we can afford in American commerce to be attacked, shut down, wait two weeks to two months for a patch to arrive, and then come back online cannot be passed off to the consumer anymore. It is just too expensive. We have got to find a more responsive way to defend our networks. And we are working on that. We are pushing on that, both on the R&D side, but also on the architectural side of how we are going to do this.

We are not alone in this activity. Homeland Security is our partner in this, Justice, the Office of the Director of National Intelligence (ODNI). All of us are playing together in this and working to understand how we can better defend the Nation's networks. This is a critical part. It is how we fight wars, but it is also how we do business as a nation. And it is going to be important as we move forward.

The responsive infrastructure, which is the last leg in the new TRIAD. To me, this is critical. This underpins our ability to have a flexible and dynamic deterrent capability. Having an infrastruc-

ture that can respond to operational and technical surprise is critical.

In the 1950's, 1960's and 1970's, when most of our nuclear arsenal was put together, it was put together under a constrict where we used inventory to manage operational and technical risk.

If a weapon had a flaw that we discovered at a certain part in its life and we lost that entire character of weapon, we had to have an alternative weapon that would fit into that slot. We had to have a big enough inventory to go through and repair all of those weapons and do it in a timeline that was sufficient to not have a gap in our capability. So we had—had and have—very large inventories to manage operational and technical risk.

We have long since learned—and I will go to a grunt mentality here, but—with the 155 round in artillery, that most of what was going on out there was associated with the logistics of moving huge inventories to the fight, and it consumed us. And we built large iron mountains to make sure we were ready.

We really can't afford to do that. It reduces our nimbleness. It reduces our flexibility to be surprised, because if somebody comes up with an alternative that defeats that weapon, we have an iron mountain that is useless and we have a hole in our capability. We can't afford that.

Precision changed that dynamic for the 155. It allowed us to have less rounds, but, coupled with precision, was an agile infrastructure, one that could be warm and building, in time, to affect the fight. That is critical.

We have to think the same way about the nuclear enterprise. We have to have an infrastructure that is responsive to technical and operational surprise. We have to have a weapon that is safe to the user, and the handler is secure, in that—for me, nirvana is that if the wrong person gets a hold of it, it is a paperweight. That is where we really want to be.

And we have got to have reliability, because the reliability means that the number of weapons against any problem is the minimum number necessary. And the goal of the Administration, as stated, is the fewest weapons necessary to ensure national security. And to move in that direction, we need to move toward a safe, secure, reliable weapon and an infrastructure that is responsive to operational and technical surprise.

RRW puts us on the path. It is not the only element. It is a form, fit, function replacement in that we are not changing any of the delivery vehicles. In fact, we are reducing substantially the number of delivery vehicles it goes in. It has the same operational characteristics, but it is safer for the people who have to handle it. It is secure, so that one of these weapons does not end up in the wrong place and used in the wrong way. And it is reliable, which draws down the number of platforms I need and the number of weapons we have to deliver.

It puts us on the right path toward drawing this stockpile down to the minimum number necessary for national security, which I think is essential.

We have two domains that we are responsible for at STRATCOM, the cyber domain and the space domain. We have

talked a little bit about cyber. Let me just touch on space, and then I will quit. I promise.

The space domain. We had the test with the ASAT here recently. That is not something that is unprecedented, in that the United States and, at the time, the Soviet Union both conducted ASAT tests.

When we conducted those tests, we did so in a way that we thought was responsible, but we did create debris in the atmosphere when we tested. And this was back in 1985. And when we tested in 1985, we tested at the lower end of what is considered the Low Earth Orbit (LEO) belt. Even testing at the low end of the Low Earth Orbit belt, it took over 20 years for that debris to come down out of space and burn up in the atmosphere.

The recent test was in the upper area of the Low Earth Orbit belt. That means that material, over the next 20-plus years, will have to migrate down through all of the—what we would call appropriate users of the Low Earth Orbit regime through that area and then down into the atmosphere. That is going to take a long time.

This test occurred above the altitude at which the International Space Station is in orbit. It occurred above where most of the satellites that use the Low Earth Orbit regime orbit. So we are going to have to make significant adjustments as collision, or, as we call it, conjunction opportunities occur over the next 20-plus years.

Every time you move a satellite, you are saying to a vendor, "You are going to expend fuel, which reduces the life of a satellite and changes the investment criteria that you assumed when you put that satellite up." That is going to have an effect on business, on commerce. And it is going to have an effect on our national assets that are in Low Earth Orbit, because we are going to have to move to avoid this debris when it occurs. That is an impact on us. We would like to have not had that happen, but it did. And so we are where we are.

Both the Chinese and our National Aeronautics and Space Administration (NASA) have programs associated with manned flight, today and into the future, flight that intends to go beyond Low Earth Orbit and out to the lunar exploration, et cetera. You are going to have to pass through this debris. You are going to have to understand the risks that you are now going to have to take to move through that. So that is one attribute associated with space that we are going to have to work on.

Because of that, STRATCOM, and the military space side of this, is responsible for predicting where that debris will be, advising users of space when they are going to conflict with it, so if you plan a manned launch, where are the gaps, so that you do not run into this debris.

We have been in what I will call a cataloguing posture in space for the last 50 years. We look and see what is up there, based on what we know was launched. Based on multiple passes over our radars and optical sensors, we try to get a good estimation of what is up there and where it is.

Inside of geosynchronous orbit (GEO), from 23,000 miles in, there are approximately 40,000 pieces of debris and intended satellites, et cetera, that we are trying to manage on a regular basis.

The timeliness of that knowledge is a catalog. We post this on open source, so the commercial vendors globally can use that. And then we give them high-resolution information for launch-type activities, et cetera.

But we are reactive in this. We are going to have to change our posture to one of predictive, to understand where this debris is going to be with longer lead times, so that we can better plan launches, have increased safety margins for manned flight, which many countries are starting to move back to—not many, but, clearly, those involved with the International Space Station and those who are involved with space exploration. That means greater margins. We have got to reconfigure ourselves in order to do that.

The expense is not that—I never say this the right way—the expense is there. We are working our way through this. But, first, we have got to change the mindset in the organizational construct and put us in a position where we are thinking more about capabilities that are predictive in nature, and move ourselves to the computing power and the sensor integration that will allow us to do that.

We started that about three years ago. We are well on our way to that. Those are funded programs, and I think they are in good shape.

But I would be happy to talk in more depth on those. Probably have to move to closed session to get to technical detail, but general capability, we can do.

And I will leave it at that, Madam Chairwoman.

[The prepared statement of General Cartwright can be found in the Appendix on page 39.]

Ms. TAUSCHER. Well, General Cartwright, thank you for a thorough vetting of many of the questions that I think I asked and the ranking member asked in our opening statements. And I think this is a great compliment to your significant, and, as I said, very comprehensive statement.

I am going to ask a couple of questions and turn to the ranking member.

We have got members here that have questions, and we are going to use the five-minute rule.

I just, very quickly, wanted to talk to you, get back to something you talked about, because RRW has been in the news recently. And I just really want to have you state for the record almost unambiguously, once again, whether RRW will deliver any new military capabilities?

And, forgive me, General, the reason I bring it up is because I want to note for the record that the last time the Administration brought a proposal forward for a new nuclear weapons capability—the redundantly named, Robust Nuclear Penetrator—I helped kill it. So I wanted to be sure that—I just wanted to get your view. Is RRW a new weapon?

General CARTWRIGHT. It is a component. When we look at a weapon, it is a combination of the delivery vehicle, the systems that navigate to take you from Point A to Point B, and then put you in a position to have the effect that was desired—in this case, a nuclear weapon.

RRW is a component of that—with no different characteristics than the weapons that we have today, other than it is safer, more

secure, and more reliable. But from a standpoint of weapon effect, from a standpoint of the delivery vehicle and its intended use, there is no change.

Ms. TAUSCHER. Same yield?

General CARTWRIGHT. Within percentages, one or two percent. In other words—I am smiling, because I am trying to make sure I don't go outside the box of classification here—but the way we are getting the capability and keeping the same weapons effect and yet having safety improved and reliability improved is that we are allowing the designers to reduce, when appropriate, the size and the yield—and we are talking just in very small numbers, single-digit-type numbers—in order to optimize for larger margins to assure that we don't need to test, to assure that we can put additional safety and security measures inside.

Some of that volume is compensated by the fact that we have moved from tube technology to microcircuits, so we can gain some advantage there. But, where necessary, we have allowed them to reshape components—including the physics packages, so to speak—to fit into this volume, optimizing for no testing, higher security, higher safety, higher reliability.

Ms. TAUSCHER. I am going to suspend my questions for the time being. I am going to yield five minutes, or as much time as he might use, to the Ranking Member, Mr. Everett.

Mr. EVERETT. Thank you, Chairman. I am going to basically do the same thing. I just have a couple of questions.

Let me talk a bit about space. We have had a lot of hearings, and you referred to the use of space in our economy. I think last hearing we had, globally, there was about a $90-billion industry. Don't remember, but I think it was growing somewhere in the rate of 16 percent a year.

General CARTWRIGHT. Yes, sir.

Mr. EVERETT. That will continue. We, on this committee, and most of the Congress, recognizes that, while we have redundancy, it would be a severe loss to our military to lose our space systems.

In that light, let me mention that there are a number of ways to achieve greater survivability—protection of our space assets, hardening on-orbit spares, redundancy, distributed architectures, alternatives such as unmanned aerial vehicles (UAVs), active prevention and denial, non-material solutions and rapid replenishment.

Along those lines, in your opinion, what is the military utility for operation response to space?

General CARTWRIGHT. I think you have characterized this very well, Congressman Everett.

There is more than one way to skin this cat. But what we have to start to understand in the larger construct here is can we change the risk equation from the standpoint of we have, in many sectors in space, moved in a direction that it is expensive to go to space, so we increase the likelihood of success, so we build a bigger motor, more reliable motor, more redundant systems.

We make the payload bigger, because, since it is going to cost so much to get there, we gotta stay there a long time. So we put additional redundancy, which turns to weight, which means the motor has to be bigger. And we work ourselves into a spiral that the risk

equation here is zero tolerance for failure, which puts us in a high-cost environment.

Some systems need to be exquisite. They need to be cutting edge, and they need to have those characteristics, but not all. And we can get resilience, and we can get survivability with a very different risk equation and the combination of both commercial assets, military assets, lower-tech assets, particularly for the warfighter. Many times, we do not need the level of technology that is necessary for, say, technical intelligence.

So getting a balance in space is critical. Having it be responsive—I will express that I have concerns when people put a label on a capability like responsive space, because then it becomes a buzz word and everybody defines their capability based on some metric of responsive. Responsive to do what-is-what is important for me to understand and for the command to understand.

We can be responsive with on-orbit assets and tailor them to problems. We have done that for many years, and it just takes a software reprogramming, a different orbit that can be adjusted. Many things can be responded with the assets that we have today. And we do that very well between ODNI, STRATCOM, and DOD.

Some assets, we could change the risk equation and build much cheaper capabilities that don't last any longer, but can augment or replace or replenish, based on the scenario, particularly with communications.

When you know that you are going to need much greater bandwidth in a particular region, surging to that, rather than putting something up there that would otherwise be an overage of capability for, say, an extended five- to ten-year period, may make a lot more sense.

It also allows us to start to broaden the industrial base out and keep it warm, instead of building something, waiting 10 years and then trying to re-gather the people and rebuild again. So we have got to take all of the pieces that have been laid out here.

Responsive, to me, is using those on-orbit assets in ways that we maybe didn't design them, but could be done. Next is having a warm industrial base that can allow us to respond quickly to either surge, replenish or replace, to have the capability in that warm industrial base, then, and the intellectual capital to see a new problem and respond to it. I mean, between those three things, that is what I would look for in the definition of responsive for space.

We are trying to move in that direction with a responsive space capability. I am focused on the capability. Others may be focused on defining it as an acquisition practice, et cetera. But, for me, it is delivering capability and understanding what is driving the timelines and not overreacting in those.

I mean, we could buy responsive with large numbers of assets in the barn, so to speak, assets stored on orbit, et cetera. That, to me, at this stage in the game, is not necessary.

What we have got to understand is what is it we are trying to do and what is the timeline for response when we are surprised, technically or operationally.

Is that——

Mr. EVERETT. That is very consistent with what you said in Omaha last October, and I appreciate that.

Mr. Reyes and I had the opportunity to be at Kirkland when the 14th Air Force was stood up.

And I have one other question. And I will admit to some personal feelings about this, but, last year, this committee, as well as the Intel Committee, had information or had in our bill that the Air Force could not close down the U2 program before the Secretary of Defense certified to the appropriate committees that there would be no loss of ISR.

The Air Force plans again this year to close down the U2. I am not sure that, at this point in time, we have—and Golden Hawk is what we are talking about. I don't think that we yet have the sensors that we need that would replace the U2. And I would just ask you if you have an opinion on that.

General CARTWRIGHT. Sir——

Mr. EVERETT. Air Force, Marine——

General CARTWRIGHT. The U2 has been part of our stable of capabilities for a lot of years and has been an incredibly capable asset. And it has a long legacy. And it has been adapted over the years. The engines have been upgraded. The avionics have been upgraded to be as relevant as they can be. And so it has been a workhorse.

Today, its primary limitation—and this is not pejorative—but its primary limitation is the fact that it has a pilot. That pilot is generally good for X number of hours. And that is what limits the duration on station.

It also is challenged in being able to enter into a threat environment. It is not survivable in a high-threat environment. But we have a substantial amount of activity that does not occur in high-threat environments.

The Global Hawk is to focus on those areas that are not high threat, but allows us the routine sorties today that we are flying with Global Hawk in theater, generally about 22–1/2 hours on station. That is a significantly longer period of it. So the Global Hawk offers us a movement forward in availability of sensors.

The Global Hawk has had its challenges in production, and I won't go technically into those. I think having the Air Force in here might allow you to do that in more detail, but we are working through those.

The objective, here, capability is to move to a more persistent platform, one that is able to stay on station longer, give us the sensor phenomenologies to be able to aid the warfighter in real-time and give him or her the information they need in order to prosecute.

The trade between Global Hawk and U2 is one that we have got to manage. The Global Hawk has to demonstrate its capability, both in the upgrades and the numbers, before we want to let go of the U2. How much risk we are willing to take is the balancing act that the Air Force is trying to work through for the Department.

For STRATCOM, I cannot afford a gap in capability. And that is the way we responded to the query from last year is we can't afford the gap in capability.

Having said that, there are certain theaters in which the U2 is extremely valuable because of its sensor package. So as we draw

it down, we have to retain, particularly in those theaters, that capability until we are absolutely certain that we have a replacement that is on station and ready to replace it.

There are other places where we use U2s where we can afford to take a little risk. So prioritizing that is what we did from a command position to the Air Force. We listed the highest priorities to the lowest priorities and where we could afford to take risk as a Nation in the transition between Global Hawk and U2. And that should help inform the debate as we move forward in this area.

Mr. EVERETT. Well, I thank you.

Of course, this committee and the Intel Committee's only position was that we would be certified that there was no loss to ISR to the warfigher.

Thank you, Madam Chairman.

Ms. TAUSCHER. You are welcome, Mr. Everett.

I am happy to yield five minutes, now, to Mr. Larsen.

Mr. LARSEN. Thank you, Madam Chairman.

And, General Cartwright, five minutes applies to my questions and your answers in total, the way the rules run. So I am going to be quick, and——

General CARTWRIGHT. I will try to be the same.

Mr. LARSEN [continuing]. I would like you to be quick as well.

About a month ago, I met with a People's Liberation Army (PLA) general who is equivalent of the Vice Chairman of the Joint Chiefs of Staff (VCJCS). He was in D.C., met with a few folks. We had a conversation about the Chinese ASAT test in which we brought up the issue of debris, and he characterized the issue of debris as a baseless concern.

We did our part to enlighten him on what we thought was a good foundation for having that concern. It wasn't a very pleasant conversation, but we got through it and only would suggest that if you can find that opportunity to explain, through your appropriate chain of command, to the Chinese how you described it to us, it might enlighten them further on what the problem is—one part of the problem—with their ASAT tests.

Also, I have some questions on China, but I submitted them for the record to Secretary Gates and General Pace when they were before us. You probably will be getting copies of those questions to participate in developing those answers.

But along that line, one question I think is important for us to talk about has to do with Space Situational Awareness. One of the problems we have been struggling with in the committee has been the investment into transformational satellite systems, as it has been called, the amount of money we have invested. I think Dr. Sega has done a good job explaining how they are trying to get that under control, but whether or not we are investing in the right thing.

And so I would like to ask you if we are investing enough in Space Situational Awareness capabilities that are needed to deter, defend and recover from possible threats against our space assets and their related ground infrastructures? And, if not, what are the greatest needs in that area?

General CARTWRIGHT. Different approaches to Space Situational Awareness. The first is to be able to survey space and know what

is there and know it with some accuracy, so that you can have access and passage in a safe way for any who want it. And that is the first capability.

And what we have done is net together, initially, terrestrial capabilities, radars, et cetera. And, now, we are starting to move toward netting together our space sensors, so that they are integrated with the ground and we are integrated in a way that gives us a higher degree of fidelity and a higher degree of reliability that we are actually seeing everything that is out there that we need to see.

Mr. LARSEN. In your opinion, is the technology to do that mature enough to do this and do it right once?

General CARTWRIGHT. Yes, from the standpoint of taking advantage of everything that we have and everything that is a program of record today that is funded.

We have a couple of capabilities that we are planning over the next few years to launch that will fill in gaps of systems that have lapsed. But given that, yes, I believe that we have what we need in those areas.

What we have to do now is get ourselves organized, so that the information flow and the uplinks and downlinks in the ground infrastructure is netted together in such a way as to have the information processed and provided, so that it can be responded to inside the decision cycle of having to act. Okay?

And I believe that we are on the path to do that, and that we have the resources necessary to do that in the aggregate. There may be disconnects—either programs that have technical issues, et cetera—but we are down to a point where we are close. That is the first piece.

The second piece that you alluded to was the phenomenologies to be able to utilize space as we utilize other areas for sensor knowledge understanding awareness. And the Department has been a large advocate of radar, because it washes away the night, and it washes away bad weather, to a large extent. And so it gives us eyes and ears when nighttime comes and when we have bad weather, which is important to us to be able to dictate the tempo of any conflict. That is why radar is so critical.

The question, now, are there more and more capabilities being associated with radar, as we move to the future. How many of those are appropriate from space? How many of those are appropriate from air and terrestrial sensors? Air and terrestrial being a little easier to adapt, change, fix, et cetera.

What we are trying to understand, and what the command is focused on is not having to look at the problem as if you are a space person. If I ask a space person to solve a problem, I get a space answer. If I ask an air person to solve it, I get an air answer.

We are trying to sit in a position where we can look at the integration of air, space and terrestrial, understand the balance, not go too heavy in any one area, and then integrate them in a way that is appropriate. I am not convinced yet that we have that framed correctly for Space Radar.

Mr. LARSEN. Okay. And I would say if you ask Congress, you will get a congressional answer, which may not be, sometimes, helpful, but if you need help on that——

So just in conclusion here, what I hear you saying is that not that we are radar heavy, but that the future allows us to have capability that may not just be focused on radar. And we may be able to do that in a leaner way with pretty good effectiveness.

General CARTWRIGHT. Integrating between the mediums and between the Intelligence Services (INTS).

Mr. LARSEN. So that you have a better way of approaching this problem.

Thanks.

Thank you, Madam Chair.

Ms. TAUSCHER. Mr. Larsen, do you want to submit a form of your correspondence to General Pace and Secretary Gates to General Cartwright for questions for the record?

Mr. LARSEN. Yes, I would actually like to do that, yes, if I could.

Ms. TAUSCHER. So ordered.

Mr. LARSEN. Thank you.

Ms. TAUSCHER. Thank you very much.

I am happy to yield five minutes to the distinguished gentleman from Texas, Mr. Thornberry.

Mr. THORNBERRY. Thank you, Madam Chair.

General, you have been quoted in some publications recently as being somewhat concerned, as I read it, about the fragmentary nature of our cyber efforts as a Government. Can you briefly outline for us what your concerns are, the kinds of things you think we ought to be thinking about?

General CARTWRIGHT. My concern on the cyber side is really on an organizational level. And it was the fragmentation of defense organizations responsible for defending networks, organizations responding for operating and doing what we call reconnaissance on those networks, setting the—being in the cyber environment. They were separated by, organizationally, not a common commander.

And so what we were advocating for was, as the mission came to STRATCOM, part of what we needed to do was get unity of command, unity of effort, so that we could get balance of offense and defense, understand that balance and articulate it to the Congress, because, right now, one group comes to you and asks about defensive capabilities. Another group comes in at a different area and talks about offensive capabilities. And you don't know whether or not this has been integrated. That is really the heart of the issue for me.

I believe, one, having the mission come to STRATCOM. Two, allowing us to put a head, which, in our framework, is—the National Security Agency is the senior head. We have Defense Information Services Agency (DISA), which worries about day-in, day-out running your service, running your backbone, but, also, the defensive nature, integrating the two of them together, so that I have got one commander who I turn to, who deconflicts.

Now, the next piece that we need to do is do that for the Government. I mean, you have to have somebody that knows what is going on out there to deconflict.

So those are my concerns, sir.

Mr. THORNBERRY. Well, I am interested in working further with you on it, because I agree. I think we do need a government-wide approach to it.

I also want to ask about RRW and responsive infrastructure. My impression is—and from listening to you again today—is that the two things have to go together.

And my further impression is that the Department of Defense—and primarily you, I guess—are going to have to be much more involved in making sure that responsive infrastructure is really there, rather than—as it has been in the past, in my view—Department of Defense turning to the National Nuclear Security Administration (NNSA) and saying, "Produce what I want, and I don't care how you do it."

To have responsive infrastructure, you are going to have to be more involved in monitoring the—not day to day, necessarily, but making sure, year by year, that that infrastructure is responsive and not being allowed to deteriorate. Am I on the right track with that?

General CARTWRIGHT. Yes, sir, you are. We had to do that—and I will go back to the 155 round just because I am comfortable being a grunt.

But, you know, we had to enter into a partnership with industry, because we had to set certain criteria about a warm base, make sure that the lines for various munitions stayed warm and that the expertise was there to respond, if we needed it, enter into a partnership that understood the cost of doing that to industry, et cetera. But you could not just sit back and say, "I want." It really demanded a partnership. And this demands a partnership.

And I am hopeful, because we have set some precedents here. We took risk on the operational side to draw down, in order to free resource for the DOE to be able to move aggressively in and start to move on RRW, but also on their Complex 2030 program.

It has to be a trade back and forth. And we have got to understand each other's risk when we do that. But it has to be done in partnership. You are exactly right.

Mr. THORNBERRY. Let me just ask this: If you are watching and you see either the RRW delayed or the Complex 2030 not happening like it should, seems to me your response, based on what you have said, is, "Okay, you have to slow down dismantlements," because, now, we are relying on numbers to protect us, and if we can't have the RRW move ahead on schedule and the responsive infrastructure on schedule, our country's only option is to keep thousands of nuclear warheads.

Am I on the right track with that?

General CARTWRIGHT. I think you are exactly right. The only thing I would add to it is that there is at least a partial ability to look at other parts of the TRIAD and say maybe they have advanced in a way that allows you to continue to reduce.

But, at the end of the day, we will have to stay with an inventory management scheme until we are absolutely convinced that we have something to replace it. The regret factors for the Nation, in this area, are too high to let go of the trapeze before you know you have got something to grab onto.

Mr. THORNBERRY. Thank you.

Ms. TAUSCHER. If the gentleman—your time is up, but if you will yield, because I think there is a corollary to that, too, that is interesting, and before we go to Mr. Spratt, the other piece of it is we

are still spending enormous amounts of money on LEP programs and other things.

So, I mean, I am not an advocate of RRW, but I think that there is another piece to this, which is instead of reducing weapons and doing other things, we are still extending the life of these weapons and spending an enormous amount of money to do that. And the question of a responsive infrastructure and the right size of the complex and all that, that question is left out there, too, if we don't make some of these decisions. I agree with you.

Thank you, Mr. Thornberry.

I am happy to yield five minutes to the chairman of the Budget Committee——

Mr. SPRATT. General Cartwright, thank you for your excellent testimony, as always, your lucid explanations.

I have, however, some clarifications I would like to get from your written statement, particularly with respect to RRW.

First of all, you have chosen Livermore as the primary entity to care for the RRW program. Could you give us, quickly, just a timeline that you expect for bringing the first RRW warhead to completion for substitution?

General CARTWRIGHT. Yes, sir. There are several disciplined acquisition points at which we would move through, stop, move forward for either a technical review or a policy or oversight review. And the one that we have just finished is kind of what we would call preliminary design. So we have stopped at that point.

We have had a certain set of criteria that are associated with preliminary design. We have looked at those. We have made a down select, understood the attributes associated with that down select.

The next area we enter into is a detailed design activity focused on what we think is the most promising design. At the end of that, we would come back and ask for permission to enter into development, and then on into fielding.

Objectively, what we are trying to accomplish here is that the Moscow Treaty put us on a drawdown through 2012. At 2012, we would like to be in a position where we have high confidence that we have a design and a manufacturing capability that would allow us to start to replace, to move into the trade between draw down and demilitarization of weapons——

Mr. SPRATT. Does that mean that you can link or associate the significant drawdown with a replacement of the RRW, that the two could be packaged more or less together?

General CARTWRIGHT. Sir, yes, sir.

Mr. SPRATT. Is that part of the strategy of trying to advance the idea of this——

General CARTWRIGHT. It has to be from the standpoint that the design has to give us a capability to handle operational and technical surprise, absent doing it with inventory. In other words, modularity, interoperability, a responsive, trained workforce that can respond to a surprise, rather than an inventory that is so diverse and so large that you don't worry about being surprised. You just bring in more inventory.

Mr. SPRATT. Does the RRW anticipate the construction of a new Re-entry Vehicle (RV)?

General CARTWRIGHT. It does not. It is form, fit, function into the existing systems.

Mr. SPRATT. Now, you say here, on page six of your testimony, "We lack the capability to respond globally to globally-disbursed or fleeting threats."

Then, on the next page, you say, "The new TRIAD, when mature, will provide improved agility and flexibility in dealing with a wider range of contingencies."

It gives me a little pause, because I read into that the possibility you are saying that the new warhead would have tactical utility, that we are resurrecting an old idea that we might be using nuclear warheads early in a threat, as opposed to the ultimate strategic reserve to respond to a threat.

General CARTWRIGHT. That was not my intent, sir. If I have stated it unclearly, the intent, here, is that the mature TRIAD would have a conventional alternative that would allow us to address targets more appropriate for conventional munitions than nuclear, A.

B, for those tactical things where we used to have all the way down to artillery, to now be in a position where we have the new J-coded weapons, we have both the cruise-missile variant and the gravity variants and the glide variants, along with a prompt global strike, we have more appropriate responses for—when we have a mature TRIAD—for threats that are more appropriately addressed by conventional munitions and effects.

May not have been able to do that in the past, because our conventional capabilities weren't——

Mr. SPRATT. But you are talking about a conventional alternative to round out the TRIAD for——

General CARTWRIGHT. Yes, sir.

Mr. SPRATT [continuing]. Prompt and fleeting threats, not a nuclear alternative.

General CARTWRIGHT. That is correct.

Mr. SPRATT. Okay. Still got time?

Ms. TAUSCHER. Yes, sir.

Mr. SPRATT. Page 10, there was an intriguing statement at the top of the page. Maybe I missed something in the story about it, but on July the 4th, 2006, the North Koreans fired several missile launches.

You state there, rather briefly, that we had our nuclear—our ballistic-missile defense system up and in operation. Can you shed some light on exactly what it was doing and what we learned from that experience?

General CARTWRIGHT. Without going into the operational details, we moved to an operational footing, brought the sensors to command and control and the ground-based interceptors (GBIs) online in a posture where, if necessary, we could have responded.

We had ambiguous activities going on at that time. We had several missiles that were being poised to be launched, including one that had the potential to be intercontinental in range. And so we took that opportunity to bring the system out of R&D configuration into an operational configuration.

We held it in that operational configuration for an extended period of time, which allowed us, on the warfighter side of the equation, to validate the training that we had been doing, the certifi-

cation of crews, certification of equipment, run that equipment for an extended period of time in operational conditions.

We learned a significant amount of information, mostly associated with our ability to do command and control of an operational missile defense system, because, understand, this system—part of the challenge here is—in the command-and-control side—is U.S. Northern Command (USNORTHCOM) has responsibility for defending the continental United States.

U.S. Pacific Command has responsibility in the Pacific Theater. The United States European Command (USEUCOM) has responsibility for Europe, but also Russia, as the new construct has been put together. This threat covered all of those simultaneously.

So managing the defense, we learned a lot about how to net these organizations together, work with sensors that are spread across all of those regions, but keep them on a common footing, and how to manage day-in and day-out the routine maintenance that must occur with any machine over an extended period of time and not have a gap in our coverage.

Much of that work was done at our integrated missile defense headquarters out at Schriever Air Force Base in standing them up and then confirming the capabilities, but there are nodes all over the world that have to be netted together to make this work. This was our opportunity to put that together, demonstrate that it could.

The good news here is that the mechanical side of this worked very well. The command-and-control side, we made some adjustments, but it worked very well.

We had allies looking over our shoulder the whole time. They were very compelled by what they saw, as you can see in the response by the Japanese and how they have started to move to integrate and build a defensive capability.

And, at the end of the day, what we were looking for was a credible deterrent capability that offered an alternative to an offensive-only capability, offered timelines that were consistent with the threat that was out there and capabilities that were not shield, but certainly were enough to put doubt in your adversary's mind about the veracity of whether or not they could act inside your timelines and inside your capability to respond. And, to me, that is what we learned over the July 4th activity.

Mr. SPRATT. Thank you very much.

General CARTWRIGHT. Yes, sir.

Ms. TAUSCHER. Thank you, Mr. Spratt.

I am happy to yield five minutes to the gentleman from Arizona, Mr. Franks.

Mr. FRANKS. Well, thank you, Madam Chair.

Ms. TAUSCHER. You are welcome.

Mr. FRANKS. And, General, thank you for being on our side. You know, your acumen and your ability is just so obvious to all of us, and we appreciate you being such an advocate for human freedom.

You know, I was struck by a couple of your phrases that I suppose all good soldiers use to emphasize the graveness of the situation by sort of a subtle understatement.

You used the term, "conjunction opportunities," related to the space debris from the ASAT test from China. And, of course, that

paints the picture in my mind of something slamming into the space station at high velocity and knocking out the command and control and seeing it plummeting to the Earth. But the subtle understatement there is still appreciated.

You also used the "high-regret factor" when we are talking about missile defense. And I think that is a concept that needs to be emphasized to a tremendous degree, because if, in fact, there ever comes a time when missile defense becomes critical to us, that high-regret factor could be something that would be clear in all of our minds.

General CARTWRIGHT. Yes, sir.

Mr. FRANKS. Unfortunately, it seemed like about half the population thinks we have a full-blown system that is completely operational. And while our systems are real, we are not there yet. And the other half of the population thinks that that is just something that is, you know, just pie charts and something that we hope for.

But I think the North Korean incident probably demonstrated the operational availability of the system more than anything, including in the Aegis system and the Ground-Based Midcourse Defense (GMD).

One of the things I am concerned about is related to—you know, the operational commanders are doing a good job saying what is necessary and what is needed, and the Missile Defense Agency is doing a good job in making sure that we have interceptors. But the services haven't all taken ownership of those yet. And can you tell me what the timeline—is there another dynamics there that we are not aware of?

General CARTWRIGHT. It was alluded to earlier that we used a different requirement, resourcing, and acquisition strategy to field this capability.

Missile defense, historically, has been more focused, for this Nation, on aircraft that might fire a missile—cruise missile, et cetera—and on short-range type activities. And even in the short-range ballistic, we really have had a capability, but nascent, at best.

The dynamics, since the early 1990's, when we had the fall of the wall, but moved out of the Cold War, ballistic missiles have become a weapon of choice in proliferation, because they can be fleeting. In other words, they can be moved to someplace. So they are hard to track. Their time of action is very, very quick. And, until you make the decision to use them, you are not flying every day, et cetera, and expending money. So they have become something that has proliferated.

And so the threat associated with them has grown. And we watched this in the first Gulf War, moving into the second and really into the age that we are in today.

What we are trying to understand, as we do missile defense, is, one, what is the right construct, and not be bounded by service lines or acquisition lines or requirements lines that have grown up in—not stovepipes—let's call them "vertical cylinders of excellence", okay—but be able to move across these and find excellence and find leverage, and, when we do, to build the compelling argument that this might be a better way to look at the problem.

And once we build that, then to try to say, "In this vertical structure, let's optimize Aegis."

Mr. FRANKS. General, my time is about gone here.

General CARTWRIGHT. I am sorry.

Mr. FRANKS. I wanted one other question on the record here.

General CARTWRIGHT. Please go ahead.

Mr. FRANKS. Yesterday, at PACCOM, I had asked General Bell how important ballistic missile defense (BMD) was to our warfighters. And he responded, "I have got 800 of these missiles pointed at U.S. troops right now in South Korea. So I would support vigorously a robust approach to theater ballistic missile defense, intercontinental ballistic missile defense. It is a very important part of the total approach to this very serious problem."

And I would sure like to get you on the record in about those same kind of terms.

General CARTWRIGHT. You can use that quote for me.

But the idea here is that we don't want to build a missile-defense system for short range, a different system for cruise missiles, a different one for intercontinental. We have got to find a way to leverage the sensors across these mission areas, across these vertical organizations in a way that makes sense. And the only way to do that is to take a look at it, find the value and then advocate, "Army, will you take this? Air Force?" You have to have one of those services come on board at some point.

Some of that is very obvious. Aegis is a straightforward mix. Once we build it, the Navy assumes it. The land-based missiles have been pretty straightforward.

It is the sensors where we are trying to understand who ought to be responsible. If the sensor is on the water, but really serves for space or for air, who should run it and how should we manage it? And we are working our way through that. We have got a good forum with the warfighters to do it. We are not at a point where that is critical yet on these new sensors, but discovery is part of this activity in understanding it.

But, at the end of the day, the Nation does not want four or five different ways to address these problems. You really want a combined way.

Mr. FRANKS. Thank you, General.

Thank you, Madam Chair.

Ms. TAUSCHER. You are welcome, Mr. Franks.

I am happy to yield to the Chairman of the Intelligence Committee, Mr. Reyes.

Mr. REYES. Thank you, Madam Chair.

General, good to see you again.

I have two different tracks that I want to ask you a couple of questions about. The first one kind of builds on the questions that you were just asked, because, in the past, combatant commanders have expressed their concerns that they do not have sufficient numbers of Patriot PAC–3 missiles, depending on the location, to deal with missile threats that they are facing and their troops are facing.

So my questions are, are you satisfied that the current numbers of Patriot PAC–3 missiles in inventory are sufficient?

General CARTWRIGHT. If PAC–3 is the only defense, we don't have enough of them. What we are trying to understand, though, is, in combination with the emerging Terminal High Altitude Area Defense (THAAD) system——

Mr. REYES. Right.

General CARTWRIGHT [continuing]. In combination with——

Mr. REYES. But it will be a while before the THAAD inventory——

General CARTWRIGHT. The line is hot, and we are producing. We have a warm industrial base. We are upgrading those missiles, based on new technology and new threat, and I believe that we are in a good position.

If we had to freeze in time and we didn't have any of these other systems, you would need more PAC–3—commanders would ask you for more PAC–3.

Mr. REYES. Right.

General CARTWRIGHT. But given that we are starting to bring on Standard Missile-3 (SM–3) from—the naval variance of these capabilities—that THAAD has had a very good test record now, as we have—we have put it back on the—we are trying to understand—keep that line warm and producing, but understand what the right balance is going to be for the Nation as we move——

Mr. REYES. Combination of THAAD and PAC——

General CARTWRIGHT. THAAD, PAC–3, the sea-based capabilities.

Mr. REYES. Is that a conversation that is ongoing——

General CARTWRIGHT. Yes.

Mr. REYES [continuing]. Right now, from your perspective, with the Secretary of Defense and others?

General CARTWRIGHT. It is a conversation that is being informed by tabletop technical war games within the Department, external to the Department and the Government and external with our allies, because they have a big stake in this.

And so we have a series of war games and tabletop exercises that we run to understand these balances and trades, because it is not just our American systems, really. We are looking at systems associated with NATO, associated with other alliances to augment this. And they should inform our investment decisions also.

Mr. REYES. There are areas in different parts of the world where, basically, the Patriot is the only protection they have, thinking about Japan——

General CARTWRIGHT. Right.

Mr. REYES [continuing]. Some areas in the Middle East.

Some of the NATO countries, as they have had discussions with us, feel that that is their only protection, at this point, against the Iranian missiles.

General CARTWRIGHT. Right.

Mr. REYES. Would you agree with all that?

General CARTWRIGHT. There are many countries that have fielded PAC–3 or PAC–2 as their primary defensive capabilities. Others have gone with indigenous systems.

There is great value in having some diversity, in having some of these indigenous systems, but PAC–3 is the—kind of the weapon of choice.

Mr. REYES. Kind of a staple.

General CARTWRIGHT. It really is.

Mr. REYES. Just switching to space for a moment, we know that there are multiple ways to achieve greater survivability and protection of our space assets to include hardening, on-orbit spares, redundancy, alternatives, such as UAVs and other such systems.

Can you tell me what the Department's overall strategy for assuring support from space systems—what is the strategy for that?

General CARTWRIGHT. I think all of the things that you just highlighted in the diversity of the approaches to space are key.

In addition to that, trying to now net together for the U.S. all of those who have utility in space—commercial, other agencies within the Government, the intelligence community, et cetera. We have, at STRATCOM, endeavored to bring those communities together in a common room, keep each other informed of intelligence, of threats. We take responsibility for the defensive side to make sure people understand what is out there, but netting together.

Now, what is different from when I talked to you last year is that the DNI and DOD's space operations centers are virtually netted together. They have common deputy commanders. So, in other words, we have a military person that is in both places in common.

So I have a unity of command, quick information whenever anything is conjunctioned in nature or other types of threats. And we are developing that with the commercial sector. We have got to move that to an international footing, and that is the next step.

Mr. REYES. All right. Thank you, General.

Thank you, Madam Chair.

Ms. TAUSCHER. Mr. Cartwright, I also want to pursue some questions on missile defense. And, you know, last year the committee expressed concern that MDA's program had been very focused on what we consider to be long-term R&D efforts, such as Kinetic Energy Interceptor (KEI), at the expense of nearer-term capabilities like THAAD and Aegis BMD.

And I am impressed, I did see in Colorado Springs your Warfighter Involvement Program. And I think that there is a lot that you have done to integrate with the other combatant commanders the sense that this is not a system looking for a buyer.

We also have, besides the warfighter, we have our allies, and, obviously, our homeland are the most important things for us to protect. We have Japan, obviously, working with us on—we have got PAC–3s and other situations.

What are we doing to integrate the allied situation to make sure that we have not just ourselves, and what are we doing to, once again, make sure that people understand that this is a defensive weapons system?

General CARTWRIGHT. A couple of activities that are going on. We alluded to the exercise programs and the tabletop work. That helps inform people of the capabilities. And, oftentimes, these systems are attributed with capabilities they don't have or are attributed with less capability than they really have.

Much of what has been focused on in missile defense is the ground-based interceptor. The reality is, for STRATCOM in particular, the larger capability here is one of a technology that does

not demand that you have to buy a certain sensor or a certain weapon or have a certain command-and-control system.

The technology of today allows us to integrate, in a plug-and-play way, in ways we never have been able to do before. That allows you to build a collective defense mindset, rather than, "Let me show you how I could do something for you."

This allows nations to bring to the table their capabilities, tailored for what they believe are their national priorities, their role in a collective defense, and contribute, and build partnerships, as they come to the table and understand the threat in the environment that they feel is appropriate to respond to for their national needs. That is what is significantly different about this system, that and the ability to integrate across, not just short-range ballistic, but a wide range.

So we saw South Korea announce that they wanted to focus on short-range capabilities. It was appropriate for their problem, but they can tie into the larger system in a way that allows them to be an ally.

Take Australia or the United Kingdom. They tend to move with us on a global nature. But they bring to the table different weapons systems, different platforms to allow them to immediately join and not have to go through an unnecessary change in their configuration, et cetera, allows more nations to come to the table, understand that this is a defensive capability, be able to articulate the characteristics that are necessary for them, participate in a different scenario, if it is Iraq, as it was here recently, and still be a viable contribution.

That is what is different about this system is its ability to move and align policy and technical capability and intent and sovereignty into one system.

Ms. TAUSCHER. Thank you, General.

Mr. Everett.

Mr. EVERETT. More questions?

I have often said that missile defense hasn't lacked funding so much as it has lacked focus. It has gone off in pursuit of different things at different times. And one perennial that keeps cropping up is space-based systems, satellite-based systems.

Given your concern about counter-space systems and the problems they carry with them, is there any money requested this year for space-based interceptors or something that might serve that function?

General CARTWRIGHT. The only thing that I am aware of—and I will go back and be very precise in the record—but the only thing I am aware of that we are endeavoring to do in space is to increase our sensor capability.

Right now, we have a set of sensors that allow us to characterize very quickly a launch from anyplace on the Earth. We are going to the next generation of that capability. It is a program of record——

Mr. EVERETT. Space Based Infrared Surveillance (SBIRS)——

General CARTWRIGHT. This is the SBIRS-low portion of—remember SBIRS-high?

Mr. EVERETT. Yes.

General CARTWRIGHT. SBIRS-low? The SBIRS-low piece is coming into its initial test demonstration does-this-work phase.

That money is in the budget. I believe—and I would have to go back, but I believe it is like 2016 before we actually go to—assuming that everything worked, we would go to a fielding of that, but, in this budget, is resourced to start to work our way through the SBIRS-low side of this, where you get the high-fidelity, quick-reacting knowledge that something has been launched.

Mr. EVERETT. Would you like to comment—as long as there is a little time, would you like to comment on the complications of placing both radars and potential interceptors in Europe? If this is not the right setting, I will understand, but——

General CARTWRIGHT. No. This is obviously an ongoing activity. So I am trying to be cognizant and not prejudice that activity in the negotiations that are ongoing. But I think it goes back to the attributes that we would like to find of a collective defense, a defense alternative, an alternative to offense that is a credible defense.

What does it look like? What are the attributes of the system? How do nations retain a certain amount of sovereignty and articulate their needs versus the global need? How do they fit in? Those are the questions. And what does that do—I think one of the key issues here is what does it do to the balance out there?

If an adversary is focused on offense-only capabilities and you introduce a defensive capability, what could be positive is that you dissuade them from moving in a direction here—in the proliferation of ballistic missiles—in a direction that would have them further proliferate ballistic missiles.

But you have to be sensitive to the balances of offense and defense in the region. And so you have got to tailor it for the region. And the region has to make a decision on how it wants to move forward, and whether it finds value in defensive capabilities as an alternative to offensive only.

Mr. EVERETT. Thank you very much.

One other question. What is the role of your command in putting together a package of what we call Nunn-Lugar Cooperative Threat Reduction (CTR)?

General CARTWRIGHT. I am glad you asked that. And I made mention in my opening statement about how important I find counter-proliferation, non-proliferation activities.

Mr. EVERETT. It was cut below the $400-million traditional benchmark this year.

General CARTWRIGHT. I think that Nunn-Lugar and CTR, has been an important vehicle in moving us forward, in helping us get to a point where we have reduced the threat levels.

We really need to think about that construct, the attributes of Nunn-Lugar, in a broader context for nations who are not necessarily today a threat, but who, if we gave them the right tools, could, not only move in an appropriate direction in the international community, but help themselves.

Nunn-Lugar gives us the ability to help nations police their borders, understand what is happening inside of their borders, control that, report, when it is appropriate to report, to a larger organization that, "Hey, I have got a problem. Something is here."

It has had many successes. It has had many challenges. But it has had many successes. What we would like to do is build on those successes, helping nations help themselves, in phase zero and phase one, long before we get to a conflict-type stage.

I believe there is an awful lot that we could do in those areas that would be hugely leveraging. We are pushing hard to start to understand that, working with our counterparts at the State Department and trying to understand a framework in which we could move this forward on a larger scale than what Nunn-Lugar had envisioned from the standpoint of the former Soviet states.

Mr. EVERETT. Thank you, sir.

Ms. TAUSCHER. Mr. Franks.

Mr. FRANKS. Madam Chairman, I didn't know we were going to have another round here. I thought that these other guys were just more important than me.

Ms. TAUSCHER. At this moment, no one is more important than you.

Mr. FRANKS. Thank you.

Ms. TAUSCHER. For the next three and a half minutes. [Laughter.]

Mr. FRANKS. Well, General, appreciate getting another chance here.

You know, I obviously agreed with your assessment of the importance of later defense, which includes protecting our space assets. But given the aggression—or perhaps that is a bad word—just the developments in China, Iran and North Korea, how do you advise legislators about our current and future missile-defense priorities?

I mean, I know that has been touched on a lot, both in terms of funding, and, as Mr. Spratt has said, you know, the focus of where those priorities should be.

General CARTWRIGHT. On the missile-defense side, and referring to priorities for fulfilling operational need, we have advocated for continuing to complete defense of the United States, but really to start more focus on deployed forces, allies and friends, building an integrated cooperative defensive capability globally.

To me, the deployed forces capabilities and the allies and friends, integrating them in, is where we want to be focused over the next few years, not to the exclusion, but it offers, operationally, a significant amount of leverage in our capability and a way to balance our operational offensive capabilities, not necessarily just our strategic, but our operational forces, because, again, if Aegis only had offensive capabilities to bring to the fight, it would send a message by its presence, and there are other messages you could use that platform to send that would be reducing tension, rather than posturing to increase it.

And having defensive capabilities on your tactical and operational, conventional, general-purpose forces is equally important to having it in your strategic forces. Does that make sense?

Mr. FRANKS. Sure.

Let me just see if I could just key off that, you know. I think, as you say, you know, when you have a defensive capability that has no intrinsic threat to potential opponents, it sort of lowers the decibel level a little bit.

With that said, you know, with some of the—to use your phrase—the forward-deployed forces, allies and friends being at potential risk across the world, and, of course, with our homeland as well, what do you think—you have stated that there is a great advantage in maintaining a defensive posture.

What do you think the risks are associated with reducing the numbers of our interceptors or reducing our emphasis on missile defense, as it were, both in the minds of our potential adversaries and in real terms?

General CARTWRIGHT. The initial—and you never know on second-, third-order effect, but the initial piece is that you would have—what we are trying to build is something that we can tailor. So the adversary who has a perception of threat that is unique to that adversary, we will reduce the tool kit that we have to keep them from going to conflict.

Having more defensive options, in addition to a reasonable set of offensive options, allows us to tailor against more adversaries, against the adversaries changing their mind and changing the character of the threat, as we saw with, say, the emergence of terrorists and things like that, the ability to have a reasonably comprehensive continuum of capability, which goes from non-conflict-type activities to defensive activities to conventional to nuclear, having that continuum so that the commander of the Pacific Command can look at a particular area and say, "This is what will effect them the most." If he has a hole in his capability, he is going to have to overbalance with something else.

And so, I mean, you can carry this to an extreme, and I am not trying to drive you in that direction, but having a reasonable continuum that allows you to tailor appropriate for what it is you are trying to address is where we want to get.

If we end up with no conventional long-range prompt ballistic or we end up with a gap in our capability on the defensive side, say, against chemical munitions or something like that, that becomes a seam, and you have to overbalance to compensate for the existence of that seam.

Mr. FRANKS. Okay. Well, General, just a last brief question. Given the potential of rogue states to gain even a nuclear capability, but perhaps with an unorthodox delivery system, do you still think that missile defense is important and pertinent to, say, again, terrorists getting hold of some type of weapon that they might try to deliver—how important do you think missile defense is to addressing that problem?

General CARTWRIGHT. From the standpoint of an actual scenario, difficult to lay out, but, generally, with a terrorist organization, they are looking for a seam by which to be aggressive toward you.

Oftentimes, in the calculus of an adversary, what we are seeking to do is take their objective away. So if you take away the high-end objectives, they may have been able to afford them. They may not have.

If you take away even the mid-level objectives of, say, being able to take a crude weapon or a crude airplane or turn some vehicle—if you start to take those away, then you get to the very difficult, which is to take away from an individual who is willing to sacrifice

their life for what they believe is a cause. How do you deter that type of an individual? What type of defenses do you put together?

And the reality is, again, you are still trying to take away their objective. You may do it through what we would call consequence management. In other words, make it very difficult to approach a building or to get through an airport, et cetera.

So you have to layer this in, but you don't want to leave a hole in order to go—you don't want to play ninth-grade soccer, where everybody goes to the ball. You really want to build a continuum.

But it is—the most difficult is to take away from an individual who answers to no one in their timing and is very difficult to monitor at the entity level, take away their objective from them. That is what you seek to do in consequence management.

Mr. FRANKS. Thank you, Madam Chairman.

Thank you, General. I still love your Marine understatement.

Ms. TAUSCHER. General Cartwright, for an hour and 45 minutes, you have captivated this committee with one piece of paper in front of you. I think you may have referred to it once or twice. It probably tells you where you are going next. We want to thank you and—see if Mr. Reyes has anything else.

You want to add another question?

Mr. REYES. Just one quick question.

General, the U.S. currently does not have the capability to support Aegis BMD operations in Central Command's (CENTCOM) area of responsibility. This is primarily due to the fact that all BMD-capable Aegis ships are assigned to the Pacific and there are no naval magazines certified to handle this—missiles in the CENTCOM AOR.

Given the current and emerging Iranian ballistic missile threat to the region, what steps are you taking to ensure that we can conduct Aegis BMD operations in CENTCOM's AOR?

General CARTWRIGHT. The fielding rate now includes ships configured and capable. We have to work our way through the magazines this year. If we had to act absent the magazines being certified, et cetera, we could do that. It would take airlift and some other things to work our way through that. We can do that.

It is really more of a policy question, and what is it we want to be able to do and what effect do we want to create. And it is wrapped up in the larger debate about missile defense in Europe and all that. All of these pieces have to come together in a way.

But this highlights for you it could be that we decide we want a missile defense capability in that part of the region, but not in the—so what would be appropriate? SM–3 gives us an awful lot of flexibility in those types of things, as does Patriot.

So we can respond in that area if we believe that that is consistent with how we want to posture in that region, and I turn to, in this case, currently John Abizaid, but, eventually, Admiral Fallon, here as he takes the reins, to think our way through that, exercise work with the partners, decide what is appropriate, and then when do you want to introduce that capability, because you have to be sensitive to the offense-defense balance that is there now, and the allies that live in the region, how they want to posture.

But, technically and logistically, we can do this.

Mr. REYES. All right. Thank you.

Thank you, Madam Chair.

Ms. TAUSCHER. General Cartwright, thank you very much. We want to extend our best wishes to you and the thousands of people that you command in STRATCOM. Please extend to them our very best wishes and thank them for their service. We thank you for your service. You are certainly a strategic asset to this country.

We appreciate your time. And we look forward to having you testify again before us in the near future. Thank you.

General CARTWRIGHT. Thank you.

[Whereupon, at 4:48 p.m., the subcommittee was adjourned.]

A P P E N D I X

MARCH 8, 2007

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

MARCH 8, 2007

FOR OFFICIAL USE ONLY

UNTIL RELEASED BY THE STRATEGIC FORCES SUBCOMMITTEE

HOUSE ARMED SERVICES COMMITTEE

STATEMENT OF

GENERAL JAMES E. CARTWRIGHT

COMMANDER

UNITED STATES STRATEGIC COMMAND

BEFORE THE STRATEGIC FORCES SUBCOMMITTEE

HOUSE ARMED SERVICES COMMITTEE

ON UNITED STATES STRATEGIC COMMAND

8 March 2007

FOR OFFICIAL USE ONLY

UNTIL RELEASED BY THE STRATEGIC FORCES SUBCOMMITTEE

HOUSE ARMED SERVICES COMMITTEE

Madam Chairwoman and Members of the Subcommittee:

This is my third opportunity to appear before you as Commander of United States Strategic Command. As such, let me first thank you for the time, attentiveness and professionalism of your staffs as we have worked through some of the difficult challenges we face. The men and women of Strategic Command have performed superbly over the last year, demonstrating honor and dedication through long hours and deployments. We continued to transform our organization and capabilities over the past year, to better deal with traditional, irregular, catastrophic and disruptive contingencies. As the national security environment continues to shift, we see other challenges on the horizon. We seek to adapt to the shifting national security environment by refining and fielding a "New Triad" of capabilities. Today I will outline how we intend to address the challenges we face and ask for your assistance.

CONTINUING TRANSFORMATION

When we met a year ago, we talked of progress toward transforming Strategic Command in the midst of conflict. We spoke of new functionally aligned organizations designed to improve our operational speed and progress toward a New Triad of capabilities. Finally, we attached particular importance to the threat posed by non-state actors, the need to tailor deterrence and focus on effects rather than kinetic solutions.

One year later, our functional components for intelligence, surveillance and reconnaissance (ISR), network warfare, global network operations, information operations, integrated missile defense and combating weapons of mass destruction are each at or nearing full operational capability. In light of disturbing trends in the space domain, we further refined our components by splitting Joint Functional Component Command - Space and Global Strike into two individual

components, focusing on global strike and integration, and space operations. These functional components are also progressing rapidly and producing significantly enhanced operational results. This year the Joint Information Operations Warfare Command (JIOWC) completed the stand up of four joint centers to facilitate the planning and execution of Information Operations. The Joint OPSEC Support Center, Joint Military Deception Support Center, Joint Electronic Warfare Center and Joint Strategic Communications Support Center were established to improve Information Operations throughout the Combatant Commands. We made progress in restructuring our legacy nuclear deterrent force in compliance with the Moscow Treaty. On the less positive side, we have debated, but made little gain in, filling a gap in our prompt global strike capability.

CONFRONTING TRADITIONAL, IRREGULAR, CATASTROPHIC AND DISRUPTIVE THREATS

The 21st Century opened with a violent attack on American soil reminiscent of our experience more than six decades ago at Pearl Harbor. Unlike Pearl Harbor, the attack of 2001 was unique in one important way; military combatants were not involved. Civilians and the image of America were the targets of calculating and fanatical terrorists. Unlike the past, attribution for this attack would not be credited to a single state or alliance of states. Rather, it would be attributed to non-state actors who were empowered by their ability to operate and leverage technology in a flattened world and were not deterred by the military tools with which we deterred others for the last 50 years.

As a world power, America's conventional and nuclear military capabilities remain second-to-none in deterring traditional threats, but our adversaries are predictably positioning themselves to avoid our strengths and exploit our vulnerabilities. Moreover, we live in a world in which traditional nation-states and alliances are asymmetrically

challenged by adversaries who are unconstrained by geographic boundaries or internationally shared societal and legal norms.

We are therefore preparing for immediate, potential and unexpected contingencies driven by these diverse adversaries who threaten America and its deployed forces, friends and Allies. These adversaries are pursuing the means for sudden and catastrophic strikes using WMD-armed ballistic missiles, or with little or no warning using WMD delivered by irregular means. They can also execute disruptive attacks in milliseconds using readily available, web-enabled communications and technologies from computers located anywhere on the globe.

SHIFTING NATIONAL SECURITY CHALLENGE

While we continue to focus on the need to deter non-state actors through effects-based operations and remain vigilant with regard to those nations that possess large inventories of nuclear weapons, recent events in Iran, Lebanon, North Korea and China, if unchecked, foreshadow future critical challenges.

Daily cyberspace intrusions into civil, military, and commercially networked systems; the nuclear aspirations of Iran and North Korea, in open disregard of broad international opinion; the firing of rockets and cruise missiles from Lebanon and Gaza into Israel by Hezbollah and Hamas; the unannounced and irresponsible launch of North Korean missiles in the vicinity of Japan; and China's controversial launch of an anti-satellite missile, which has subsequently endangered routine use of space, demonstrate the range of challenges facing America.

Today, we live in an Information Age where communication through cyberspace has forever changed and flattened our world. Free and open use of cyberspace has become an essential tool of the global economy and connects people throughout the world to each other. In fact, most Americans can no longer imagine a world without instant communications and

the freedom to access goods, services, and information at will. However, not unlike the targets of pirates or train robbers of the past, America is under widespread attack in cyberspace. Our freedom to use cyberspace is threatened by the actions of criminals, terrorists, and nations alike. Each seeks their own form of unique advantage, be it financial, political, or military, but together they threaten our freedom to embrace the opportunity offered by a globally connected and flattened world. The magnitude of cost, in terms of real dollars dedicated to defensive measures, lost intellectual capital and fraud cannot be overestimated, making these attacks a matter of great national interest. Unlike the air, land and sea domains, we lack dominance in cyberspace and could grow increasingly vulnerable if we do not fundamentally change how we view this battle-space.

Ballistic missile proliferation is a concern to free nations and will continue to pose a challenge to national security around the world. Introduction of nuclear weapons to the situation, particularly in the hands of regime leaders who openly seek to threaten or coerce their neighbors, presents an untenable threat to U.S. national security interests. It is clear that we must exhaust all possible diplomatic and economic avenues to solve the problem, but in the end, the DoD could be called upon to deter, reduce, or eliminate a critical threat to the security of America, its forces, friends, and Allies.

America's defense strategy relies upon layers of capability that offer policy-makers maximum political-military flexibility. The first layer is our emergent missile defense system. This system, when mature, will not be an impenetrable shield, but it will reduce the likelihood of successful attack. Successful tests have thus far demonstrated our ability to overcome technical challenges and we have gained international credibility, but more work remains as we turn our attention to defense of

Europe and regional threats in Southwest Asia. Our second layer of defense is offensive strike - defeat the threat. Policy-makers will first seek to employ forward deployed general-purpose forces, normally available in 3-5 days, given sufficient warning and range. Some conventional global strike forces are capable of reducing or eliminating threats within 1-2 days, but if the threat is sudden or fleeting our only existing prompt global strike capability employs nuclear ballistic missile systems. While America possesses dominant conventional capabilities second-to-none, we lack the capability to respond promptly to globally dispersed or fleeting threats without resorting to nuclear weapons. As good as they are, we simply cannot be everywhere with our general-purpose conventional forces and use of a nuclear weapon system in prompt response may be no choice at all.

Intentional interference with space-based intelligence, surveillance, reconnaissance, navigation and communication satellites, while not routine, now occurs with some regularity. America's ever increasing appetite for space-based technical solutions for global positioning, communications, and weather among others, if not properly managed could become our Sword of Damocles - we must not become trapped in this vulnerable position. Space is now a contested domain where, without adjustments to our strategy, we may not be able to count on unfettered access to space-based systems should others persist in their course of developing counter-space weapons. Strategic Command believes that if we are to ensure our freedom to operate peacefully in space, we must rely upon a balanced acquisition strategy that employs a mix of some highly specialized space-based systems and other less elegant but more responsive space-based systems, and a global system of distributed terrestrial networks to help avoid this undesirable trap and properly mitigate the risk we currently face.

ADAPTING TO THE SHIFTING SECURITY ENVIRONMENT - FIELDING THE NEW TRIAD

The diverse challenges facing America necessitate a mature strategy that reaches well beyond the blunt, cost-imposition approach of Cold War planners. This strategy must be equally adept at denying the benefits our adversaries might seek to gain and encouraging restraint even in conflict. We understand well that policy-makers will consider a range of options including diplomatic, military and economic. The Department of Defense will in turn consider options spanning offense and defense, kinetic and non-kinetic, conventional and nuclear, as appropriate to the political-military context. Strategic Command has multiple roles to play in peacetime and conflict, not the least of which is providing sufficient intelligence, surveillance, and reconnaissance upon which decision makers will act. We must ensure U.S. freedom of operation in space and cyberspace, connectivity sufficient to exercise global command and control, integrated missile defense, and upon order, provide kinetic or non-kinetic global strike. Central to this strategy is the New Triad, which remains the foundation for our strategic approach to global deterrence.

The New Triad is comprised of integrated offensive and defensive capabilities enabled by persistent global command and control (C2), robust planning and intelligence, and a responsive defense infrastructure. The New Triad, when mature, will provide improved agility and flexibility in dealing with a wider range of contingencies. Our goals are to avoid undesirable competition, discourage proliferation, assure allies and deter aggression, particularly from WMD-armed adversaries, by maintaining sufficient strategic margin and flexibility vis-à-vis our competitors.

While the vision of the New Triad concept is sound and we have made progress, the shift in the global environment threatens to outpace the implementation timeline. Our ability to seamlessly integrate defensive

and offensive capabilities requires the more mature set of capabilities we are working toward. The remainder of this statement will outline the important roles of our various mission areas and highlight those needs we see as essential to meeting our goals.

INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE (ISR)

Our Joint Functional Component Command - ISR has achieved full operational capability and begun adjusting our transactional model. Our current ISR capabilities and allocation processes were designed to focus on nation-states possessing traditional military capabilities and supporting infrastructure. Today we face adversaries who avoid our strengths and seek to attack through non-traditional means. Our ISR enterprise, designed to confront the former Soviet Union and the Warsaw Pact, is not optimized for either collection against, or analysis of, these new adversaries. Our initial assessment reveals that although we have increased the volume of collection, disparate sensor and requirement management procedures have resulted in redundant collections and system-wide inefficiencies, further stressing an over-burdened ISR enterprise. These inefficiencies inundate our analytical teams with volumes of data, rather than providing the right information at the right time. As a Department, we effectively meet less than one third of our Combatant Commanders' war-fighter information needs through these outdated systems. At the same time, the National Reconnaissance Office manages collection of national-level intelligence requirements for the Director of National Intelligence. We have invested significant energy in strengthening this partnership with the National Reconnaissance Office in an effort to streamline and better integrate collection management.

Our objective is to optimize use of the Department's ISR resources by eliminating requirements and collection redundancy, streamlining the process to deploy ISR assets, and conducting genuine assessment of those

operations. Our goal is an efficient global ISR enterprise, focused on achieving persistent collection capabilities against legacy and emerging threats through enhanced global sensor management of U.S. and coalition capabilities. We seek your support to improve our global situational awareness, and analytical capability to model and simulate the system of collection systems, spanning national, DoD, and coalition collection. Enhanced situational awareness and modeling and simulation capabilities will advance our ability to more effectively employ the assets we possess and move us closer to fully exploiting the data we collect.

INTEGRATED MISSILE DEFENSE

Because the threat posed by the proliferation of ballistic missile technology and cruise missiles is serious, a credible missile defense capability is now an essential element of America's national security strategy. Even at this early stage of maturation, missile defense systems influence our adversaries' perception of the economic and political cost they must incur to pursue ballistic missile technologies. While missile defense as a defensive shield is important, its value as a dissuasive force or deterrent is proving far greater.

Our integrated ballistic missile defense program had an excellent year. Within a 90-day period we successfully intercepted ballistic missiles at low and high altitudes; in mid-course and terminal phases; and, in endo- and exo-atmospheric environments. We increased the numbers of our AEGIS tracking and engagement ships, GBIs in Alaska, and gained confidence through testing and deployment of the Forward-Based X-Band-Transportable (FBX-T) and Sea-Based X-Band (SBX) radars to Japan and Alaska respectively. At the same time, Sentinel radars and Avenger Air Defense systems participated in a combined NORTHCOM-NORAD training exercise in July 2006 to test our ability to rapidly deploy sensors and joint air defense systems to defend key assets against cruise missile attack.

The July 4th, 2006, North Korean missile launches spurred a limited operational activation of the Ballistic Missile Defense System (BMDS) and, as a result, helped us streamline our plans, tactics and procedures. We learned that the BMDS, procedures, and personnel performed well, and demonstrated a credible operational missile defense capability for homeland defense. An initial investment by NATO in construction of a BMD command and control system along with growing interest by countries throughout the world in hosting both radar and interceptor bases are testaments to this credibility. Japan has accelerated and expanded its cooperation program with the United States for ballistic missile defense, and South Korea recently committed to developing short-range ballistic missile defenses. We expect discussion of forward deployment of radars and interceptors in Europe to continue with our Allies as attention on the emerging threat in Southwest Asia grows.

As we move forward in the next year, more work remains. We must integrate air and cruise missile defenses with our growing ballistic missile defense system. Continued progress also requires further research, development, test and evaluation of individual components and end-to-end testing to validate sensor and shooter integration. Partnering with the Missile Defense Agency and the other DoD Service Components, we expect to further evolve the BMDS by adding new elements to the integrated sensor network. These elements will include cruise missile defense capabilities and extant intelligence collection sensors that will contribute to our situational awareness and overall integrated missile defense capability. In addition, the first two Space Tracking and Surveillance System (STSS) satellites will be placed on orbit to demonstrate our ability to protect avenues of approach that can't be protected by other means. We also plan to increase the effectiveness of our system by improving target discrimination capability through

integration of advanced algorithms in the Forward-Based X-Band-Transportable and Sea-Based X-Band radars.

INFORMATION OPERATIONS

We made progress in growing Information Operations Capabilities into core military competencies. We will continue to develop these and related Strategic Communications planning capabilities to ensure that all Joint Force Commanders gain and maintain the information advantage over our adversaries throughout the entire spectrum of regional and trans-regional engagement. As our capability centers, specifically for Electronic Warfare and Strategic Communications planning support, reach maturity, we will be able to provide trans-regional planning and integration support and strategic effects assessments responsive to the demands of the new Triad.

CYBERSPACE OPERATIONS

Earlier in this statement we noted that attacks in cyberspace are a matter of great national interest. Cyberspace has emerged as a war-fighting domain not unlike land, sea, and air, and we are engaged in a less visible, but none-the-less critical battle against sophisticated cyberspace attacks. We are engaging these cyberspace attacks offshore, as they seek to probe military, civil, and commercial systems, and consistent with principles of self defense, defend the DoD portion of the Global Information Grid (GIG) at home.

The National Strategy to Secure Cyberspace describes cyberspace as the nervous system of our country and as such, essential to our economy and national security. It describes a role for all federal departments and agencies, state and local government, private companies and organizations, and individual Americans in improving cyber-security. The National Security Strategy to Secure Cyberspace lays out a framework that seeks to deter our adversaries and assure our freedom of action in cyberspace.

Fundamental to this approach is the integration of cyberspace capabilities across the full range of military operations.

Strategic Command is charged with planning and directing cyber defense within DoD and conducting cyber attack in support of assigned missions. To date, our time and resources have focused more on network defenses to include firewalls, anti-virus protection, and vulnerability scanning. While generally effective against unsophisticated hackers, these measures are marginally effective against sophisticated adversaries. History teaches us that a purely defensive posture poses significant risks; the "Maginot Line" model of terminal defense will ultimately fail without a more aggressive offshore strategy, one that more effectively layers and integrates our cyber capabilities. If we apply the principles of warfare to the cyber domain, as we do to sea, air, and land, we realize the defense of the nation is better served by capabilities enabling us to take the fight to our adversaries, when necessary to deter actions detrimental to our interests. Our adversaries seek to operate from behind technical, legal, and international screens as they execute their costly attacks. If we are to take the fight to our adversaries, we will need Congress' help to find solutions to penetrate these screens.

SPACE OPERATIONS

Freedom of action in space is as important to the United States as freedom to operate in the air and sea. In order to increase knowledge, discovery, economic prosperity, and enhance the national security, the United States must have robust, effective, and efficient space-based capabilities. The United States considers space systems to have the right to pass through and peacefully operate in space without interference, not unlike that of transit through international waters. Consistent with this principle, the United States views purposeful interference with its space systems as an infringement on its rights, and furthermore considers space

capabilities, including the ground and space segments and supporting links, as vital to its national interests. Recent events make it clear others may not share these values. Platforms costing billions of dollars to replace and the lives of astronauts from many nations are now at risk from debris left by China's recent ill-advised anti-satellite test.

Historically, space situational awareness (SSA) was focused on the cataloging, tracking, and monitoring of objects in space via the space surveillance network. Today it is clear we must have better space detection, characterization, and assessment tools. We require capabilities that enable rapid threat identification and attribution, facilitate a defensible architecture and provide fundamental shifts in space awareness. To this end, Strategic Command has created the Joint Space Operations Center (JSpOC) to ensure a more focused global command and control of our space operations and systems. We are in the process of co-locating and consolidating the Space Control Center and the JSpOC at Vandenberg Air Force Base in California.

We have provided, through the Secretary of Defense, a recommended plan for the establishment of an Operationally Responsive Space Office. The overall goals are to strengthen the nation's space leadership and ensure that space capabilities are available in time to further U.S. national security, homeland security, and foreign policy objectives. Our recommended guidelines were to increase and strengthen interagency partnerships to ensure a focused and dedicated unity of effort. Interagency partnerships provide opportunities to jointly identify desired effects, capabilities, and strategies. Departments and agencies will capitalize on opportunities for dynamic partnerships - whether through collaboration, information sharing, alignment or integration. To minimize the threat to our space capabilities now and in the future, we need continued support of programs that enhance our space situational

awareness, space protection capabilities, and satellite operations in order to preserve unfettered, reliable and secure access to space.

GLOBAL STRIKE

The devastating attack in September 2001 made it clear that we must engage our enemies offshore, or suffer further damage at home. To do so, we require a robust mix of capabilities tailored to a wider range of potential adversaries and spectrum of challenges than yesterday. The DoD has aggressively pursued this wider range of capabilities over the last decade by pursuing a highly effective mix of advanced conventional systems designed to take the fight to our adversaries with sufficient precision to enhance the credibility of our warnings and effectiveness of our strikes.

However, while the DoD deploys and when necessary employs these expeditionary forces around the globe, it is unlikely we can or will have forces in every place we need them at the crucial moment when we have an opportunity to deter or respond to an attack, be it conventional or otherwise. A timely response will be possible using these conventional forces if they are properly equipped and positioned in near proximity to the emerging threat. If our forces can't be in position to respond rapidly, it is prudent to have the ability to defeat attacks or eliminate high value or fleeting targets at global ranges rather than suffering the consequences of an attack. We have a prompt delivery capability on alert today, but it is configured with nuclear weapons, which limits the options available to our decision-makers and may reduce the credibility of our deterrence.

The capability we lack is the means to deliver prompt, precise, conventional kinetic effects at inter-continental ranges. Several analytical efforts are underway or have been completed to assess mid-term options. For example, Air Force Space Command is developing a promising concept for a CONUS-launched conventional strike missile (CSM), which

capitalizes on the maneuverability and precision-to-prompt-effects offered by maneuvering flight technology to produce effects at global distances. Army Space and Missile Defense Command is actively working thermal protection and management solutions that can be effectively used across the range of potential advanced PGS solutions.

Unfortunately, the threat we face is more virulent and arrived at our shores earlier than expected. Because the threat has outpaced our search for solutions, we have examined many plausible alternatives and believe a near-term solution to deploy a precision global strike missile within two years of funding is essential to adequately defend the nation offshore. This near-term capability should be part of a larger strategy to explore, test and field other land, sea, or air-launched alternatives to produce effective mid (2013-2020) and long-term (2020 and beyond) solutions.

COMBATING WEAPONS OF MASS DESTRUCTION (WMD)

For more than half a century we lived in a world in which the few major powers possessing nuclear weapons walked a cautious path of mutual deterrence. For years we have encouraged those nations retaining chemical and biological weapons to disavow them as the major powers did long ago. To its credit, Libya has raised its profile within the international community by divesting itself of weapons of mass destruction that did not and could not guarantee its security; it is too soon to know for North Korea.

Strategic Command's role is to integrate and synchronize DoD efforts in support of national efforts to combat WMD, on a global scale. Strategic Command is therefore actively engaged with the national laboratories, the Director of National Intelligence, National Counter-Proliferation Center, National Nuclear Security Administration, the Defense Threat Reduction Agency, the Department of Homeland Security, Regional Combatant Commanders and others to better coordinate, integrate and synchronize our collective

response to the threat. We provide support to Non-Proliferation Treaty (NPT) initiatives, the Cooperative Threat Reduction (CTR) program, and the Proliferation Security Initiative (PSI). We recently completed a WMD Elimination Concept of Operations, and will soon activate a Joint Elimination Coordination Element (JECE) to serve as the core of a Joint Task Force - Elimination (JTF-E), should such a force be required.

We ask for your continued support in helping us build on the successes realized through programs like the Nunn-Lugar Cooperative Threat Reduction Initiative. Resources that enable us to scale the attributes of existing programs to a global level, will provide global combating WMD capabilities by building global partnerships, using a global perspective, with the tools and metrics to judge value, and allow individual or regional WMD interdiction and elimination by host nation-state process owners. This process focuses on enabling "nation self help," where empowered nations are stakeholders and active participants in the fight to interdict and eliminate the threat of WMD. By participating with these nations, our actions reinforce their status as a sovereign state, elevate their standing, reinforce their status, and are a positive step forward for America as our partners develop and possess resident counterproliferation capabilities, providing advanced threat reduction and attribution forward from our shores while demonstrating a consolidated front to the threat.

NATIONAL COMMAND AND COORDINATION CAPABILITY

The world is fundamentally more complex than it was when our current point-to-point nuclear command and control system was developed more than 50 years ago. This single-purpose aging command and control system, while adequate to meet our nuclear mission, is not adequate to meet our broader national objectives. As we seek to sustain the essential core nuclear command and control system, we see an opportunity to transform this 1950s Cold War capability into a government-wide national communications

capability. To do so, we must take advantage of modern networked architectures.

At the outset, our strategy was two-fold, first to sustain our legacy nuclear command and control system and second to expand its capability to address a broader scope of military challenges. These investments would better integrate all elements of national power and increase our ability to quickly respond across a broader spectrum of military threats. However, our national experience in Hurricane Katrina made it clear that America needed more and we expanded the scope of our effort to improve the Nation's ability to support civil authorities following disasters or other domestic events. The President has subsequently provided guidance to develop a robust, enduring, secure, survivable National Command and Coordination Capability that integrates our legacy nuclear command and control functions into a net-centric National Command and Coordination Capability. In support of these objectives, we have developed partnerships with the Departments of Homeland Security and Justice, and Director of National Intelligence.

The goal is to create a National Command and Coordination Capability (NCCC) that not only meets national command and control requirements, but can become the versatile and stable backbone of a nationally distributed network to meet other important homeland security requirements. Through an integrated and adaptive approach, NCCC will enable a responsive, universally collaborative and virtual environment for all users. We are well on the way to realizing this vision. Actions to date include modernizing our airborne components, distributing our ground components, and increasing network capacity.

SAFETY, SECURITY AND RELIABILITY OF THE NUCLEAR STOCKPILE

The National Nuclear Security Administration (NNSA) and the Department of Defense share responsibility for the safety, security, reliability, and

effectiveness of the nation's nuclear warhead stockpile and for the quality and responsiveness of the enterprise necessary to sustain it. During the last decade, our Nation invested in increasing our scientific understanding and extending the life of weapons designed and produced during the Cold War. To date, these efforts have successfully ensured the reliability of our weapons without the need to conduct nuclear tests. While this strategy has served the nation well, we recognize the current path of indefinitely relying on legacy nuclear designs refurbished through a series of life extension programs entails accepting significant future risks and potentially large costs, to reliability/performance, safety, security, and responsiveness points of view. For this reason, we support a Reliable Replacement Warhead (RRW) program as the best path forward to improve nuclear weapon safety, security, and reliability and advance our goal of the lowest possible stockpile levels consistent with national security.

The 2001 Nuclear Posture Review described a need for a responsive production infrastructure, capable of responding to a strategic surprise, as part of its comprehensive nuclear strategy. The combination of the RRW program and responsive infrastructure investment are key elements of our overall strategy to further reduce our nuclear warhead stockpile to the lowest level consistent with national security requirements and move the Nation from an inventory-based to a capability-based risk management strategy. As the comprehensive strategy for the nuclear enterprise matures, the RRW program will replace extant nuclear warheads with increasingly modular and interoperable warheads that are safer, more secure, and highly reliable, as one element of a broader strategy to reduce our reliance upon nuclear warheads and more aggressively reduce our non-deployed stockpile. RRW designs will incorporate a broad suite of enhanced safety and security features that cannot be attained through the

life extension process. Modularity and interoperability remain top warfighter priorities for the RRW concept. These attributes will significantly increase the operational flexibility and responsiveness of the nuclear weapons stockpile and improve our ability to introduce new technologies and respond to technological and/or geopolitical surprise. We ask for your continued support of the RRW program as an integral part of the nation's comprehensive strategy to meet national security requirements and encourage Congress to continue investing in the transformation of our aging nuclear infrastructure; it is a key element in the sustainment of a credible nuclear deterrent for the 21st Century.

CONCLUSION

United States Strategic Command is engaged in a wide-ranging campaign to provide support to all elements of the Department of Defense, assure our Allies, dissuade undesirable competition, deter our adversaries, and if called upon to defend our nation and defeat our enemies. We take this role very seriously and today present you with carefully thought out recommendations. Once again, thank you for your time, insight, and attentiveness to our views.

QUESTIONS AND ANSWERS SUBMITTED FOR THE RECORD

MARCH 8, 2007

QUESTIONS SUBMITTED BY MS. TAUSCHER

Ms. TAUSCHER. Today, while USSTRATCOM is active in setting warfighter's requirements for military capabilities, it is the responsibility of the services to fund and develop those capabilities. a. Please describe the working relationship between USSTRATCOM and the services. b. Is there a gap between USSTRATCOM's mission needs and the services' ability to fund and carry out the needed programs? c. Do you perceive a trending convergence or divergence between warfighter requirements and the services' programs to carry them forth?

General CARTWRIGHT. a. Processes are in place to address Service funded Combatant Commander warfighting requirements, such as the Integrated Priority List (IPL), Senior Warfighter Forum (SWARF), Joint Requirements Oversight Council and other Senior Leader Forums. While the Services are largely responsive to Combatant Commander requirements, today's constrained resource environment leads to inevitable disagreements on some issues. The current DOD Planning, Programming, Budgeting and Execution (PPBE) process anticipates "friction points" and incorporates checks and balances, to include direct appeal to the Secretary of Defense, prior to finalizing the President's Budget for submission to the Office of Management and Budget (OMB). b. Fiscal constraints prevent fully funding all of USSTRATCOM's mission requirements; however, the DOD Planning, Programming, Budgeting and Execution (PPBE) process provides ample opportunity for the Services, COCOMs, Joint Staff and OSD principals to vet and determine DOD funding priorities. c. Convergence is perceived between warfighter requirements and service programming actions.

Ms. TAUSCHER. Over the past 15 years, USSTRATCOM has evolved to become a command with many missions. How do you envision the command to change in the next 15–20 years?

General CARTWRIGHT. The transformation of U.S. Strategic Command over the past 15 years has been one borne out of necessity. All of the mission areas, while diverse in their detailed characteristics, are strategic in nature and global or unconstrained by geographic boundaries. The recent implementation of joint functional components places a strong operational focus on the mission areas, while the headquarters staff focuses on supporting the President and Secretary of Defense, providing strategic guidance to the command, and ensuring synchronization across all of the commands efforts.

Looking into the future, I believe Strategic Command will take on a role similar to U.S. Special Operations Command as a force provider of unique global capabilities, responsible for cradle to grave development, fielding and employment of capabilities in support of global operations.

New or currently unidentified adversaries will continue to emerge. Strategic Command will have a greatly increased role in our nation's daily defense, as adversaries continue to seek an advantage by avoiding our traditional strengths in conventional military forces. In particular, cyberspace will become a central front in our national defense as criminals, terrorists, and nation states attack our vulnerable seams.

The Strategic Command organizational structure will continue to evolve as the New Triad of capabilities is fully fielded. Within 20 years, most of the capabilities now under development will be fully operational and legacy systems designed for the Cold War will be gradually phased out. Allied and interagency collaboration will have a significantly larger role within Strategic Command's mission areas and as a result our relationships beyond the Department of Defense will need to be as robust as those internal to DOD are now.

Ms. TAUSCHER. In a 2006 report, GAO found that better guidance and communications between the STRATCOM leadership and its components was needed to enhance the command's ability to execute its missions. a. Please describe the relationship between the USSTRATCOM's service components and the new JFCCs. Has this relationship had an opportunity to fully mature? b. How has the execution of USSTRATCOM's mission improved since the implementation of JFCCs?

General CARTWRIGHT. Initially, USSTRATCOM HQ, its service components, and functional components relied principally on telephone and electronic mail for connectivity and synchronization. These methods were far from optimum. Today,

new tools are in place. All components now enjoy full real-time collaborative connectivity via the STRATCOM Knowledge Integration Web (SKIWeb) and Global Operations—Collaborative Environment (GOC–CE) at all levels of security. Their employment has fostered a much better level of understanding/interaction amongst all components; hence a greater ability for timely and on-the-mark functional component execution, supported by the capabilities and resources supplied by the service components. b. The implementation of JFCCs has created synergy among USSTRATCOM's assigned missions. We have gained tremendous effectiveness by the alignment of our JFCCs with service or agency centers of excellence. We continue to mature this capability through robust exercise and training opportunities.

Ms. TAUSCHER. According to a September, 2006 GAO report, USSTRATCOM JFCCs lack adequate direction and criteria for declaring Full Operating Capability. According to that same report, all of the JFCC's were scheduled to reach the FOC milestone in 2006 or 2007. What measures have been taken to ensure that when the JFCC's reach the FOC milestone they have, in fact, achieved the required capability?

General CARTWRIGHT. Our focus in 2006 was to achieve an Initial Operating Capability across the command as adequate resources were made available. We have established an integrated training and exercise program that will evaluate and enhance JFCC and command-wide operational capabilities. We will continually monitor the command's progress on six month increments. Our components are resourced and operational today and we will continue to improve our capability as we move toward full operational capability.

Ms. TAUSCHER. Please describe the process involved in setting requirements for the future nuclear force structure. What is USSTRATCOM's role? What obstacles or challenges might be impeding more specific definition of military requirements for the future nuclear force structure?

General CARTWRIGHT. USSTRATCOM provides warfighter force structure requirements to the Nuclear Weapons Council (NWC) through the Nuclear Weapons Stockpile Memorandum (NWSM) development process. The process culminates in an annual memorandum to the President from the Secretaries of Defense and Energy that specifies the size and composition of the stockpile. Implementation of the New TRIAD, particularly in the areas of offensive strike and responsive infrastructure, will enable us to better define future military nuclear force structure requirements.

Ms. TAUSCHER. Does USSTRATCOM have a position on ratification of the CTBT, given that one of the key objectives of RRW is to minimize the likelihood of testing?

General CARTWRIGHT. RRW provides a path forward for the long-term sustainment of nuclear capabilities in the absence of underground nuclear testing. RRW transformation, therefore, will address many of the stockpile sustainment concerns raised with respect to ratification of the CTBT. RRW, however, is still in the early stages of development and a national decision has not been made to proceed. If that decision is made, it will take decades to replace all the legacy warheads in the stockpile. RRW has the potential to be a key element in the ratification of CTBT if we continue through the various development and fielding milestones.

Ms. TAUSCHER. What is the warfighter's need for RRW? Can the warfighter's needs be satisfied by maintaining just the current stockpile through the Stockpile Stewardship Program and LEPs?

General CARTWRIGHT. A long-term strategy based on extending the life of legacy warheads leaves the nation heavily reliant on a limited number of aging, increasingly costly and difficult to maintain warhead types for its nuclear deterrent. Such a strategy does not adequately exercise the facilities, scientists, engineers, and technicians needed for a responsive infrastructure. Many of our legacy warhead types need to be refurbished or replaced over the next several decades when the scientists, engineers and technicians that developed, tested and fielded legacy nuclear weapons will be retired.

As a result, we continue to maintain a large and costly "hedge" of non-deployed warheads to mitigate the risks of technological and/or operational surprise. It is difficult to predict if, or when, the current strategy may become unsustainable or when we will face a technical challenge we may not be able to resolve without testing. Delaying transformation until we reach that point may put stockpile readiness and the nuclear deterrent at significant risk.

Life Extension Program strategies address individual component issues without regard to end-to-end design. Eventually, (10–15 yrs.) the number of component changes compromizes our ability to certify in the absence of testing.

Ms. TAUSCHER. How do decisions on future delivery systems (e.g., ICBM, bomber modernization) impact RRW capabilities and timelines? Conversely, how do RRW decisions influence development of future delivery systems?

General CARTWRIGHT. Future delivery system decisions have little impact on RRW capabilities and timelines. The health of the legacy stockpile, infrastructure, and planned life extension activities are the principal drivers for RRW development and deployment strategy. RRWs will be sized to the same dimensions as the legacy warheads they replace and provide similar military capability. RRWs will be integrated into their delivery systems during development. Modularity and interoperability enable compatibility with existing and future delivery systems and provides a spiral development pathway for the future. The first RRW, for example, will be compatible with the Navy's D5 submarine launched ballistic missile and adaptable to the Air Force's MinuteMan III inter-continental ballistic missile and follow-on long-range strike delivery systems. Future delivery systems will enable us to take full advantage of RRW's features through common interfaces and the use of common modular components.

Ms. TAUSCHER. Have the warfighter's needs been adequately captured in the RRW design and decision-making process?

General CARTWRIGHT. USSTRATCOM was an active participant in the RRW Feasibility Study and the Nuclear Weapons Council decision making process and remains actively engaged to ensure RRW meets warfighter needs. These warfighter requirements have been validated in a Joint Requirements Oversight Council Memorandum.

Ms. TAUSCHER. What role will RRW play in the nation's overall strategic deterrence and New Triad objectives, particularly given investments in a conventional PGS capability?

General CARTWRIGHT. RRW coupled with a responsive infrastructure is an important element in our tailored deterrence strategy. Transformation of the nuclear enterprise, coupled with other elements of the New TRIAD, will further reduce our reliance on nuclear weapons.

Ms. TAUSCHER. What risks do you see, if any, in pursuing a "Life Extension Program-only" strategy as opposed to proceeding with the reliable replacement warhead?

General CARTWRIGHT. A long-term strategy based on extending the life of legacy warheads leaves the nation heavily reliant on a limited number of aging, increasingly costly and difficult to maintain warhead types for its nuclear deterrent. Such a strategy does not adequately exercise the facilities, scientists, engineers, and technicians needed for a responsive infrastructure. Many of our legacy warhead types need to be refurbished or replaced over the next several decades when the scientists, engineers and technicians that developed, tested and fielded legacy nuclear weapons will be retired.

As a result, we continue to maintain a large and costly "hedge" of non-deployed warheads to mitigate the risks of technological and/or operational surprise. It is difficult to predict if, or when, the current strategy may become unsustainable or when we will face a technical challenge we may not be able to resolve without testing. Delaying transformation until we reach that point may put stockpile readiness and the nuclear deterrent at significant risk.

Life Extension Program strategies address individual component issues without regard to end-to-end design. Eventually, (10–15 yrs.) the number of component changes compromizes our ability to certify in the absence of testing.

Ms. TAUSCHER. Do you perceive a capability gap in the Prompt Global Strike arena? If so, when evaluating options for Prompt Global Strike, can the warfighter afford to accept the risk imposed by that capability gap for the next 12–15 years or more until an alternative technology might first be available?

General CARTWRIGHT. A capability gap in the Prompt Global Strike arena exists. The nation requires the capability to deliver prompt, non-nuclear kinetic effects under all conditions across a range of scenarios. Given adversarial offensive space activities, missile and WMD proliferation and aspirations, and the potential of emerging high value, time sensitive targets in the global war on terror (GWOT), a near-term solution to deploy a PGS capability is essential. We also require a alternative prompt global strike capability in order to avoid high risk, self deterring scenarios.

Ms. TAUSCHER. Six years have passed since the 2001 Nuclear Posture Review laid out the framework of the New Triad, yet the U.S. has yet to implement this new vision. What is your vision for the New Triad? What technologies are of greatest importance to the warfighter in trying to implement this New Triad?

General CARTWRIGHT. We envision a broad suite of integrated offensive and defensive capabilities enabled by persistent global command and control (C2), robust planning and intelligence, and a responsive defense infrastructure that provides improved agility and flexibility in dealing with a wider range of contingencies. Technologies of greatest importance include robust offensive, defensive, and exploitation

cyber capabilities in order to defend the Nation's economic base, cruise and ballistic missile defense integration into a collective defence network, horizontally integrated persistent ISR capabilities, and a broader array of offensive prompt, precise kinetic and non-kinetic capabilities are essential.

Ms. TAUSCHER. In the Fiscal Year 2007 National Defense Authorization Act, Congress expressed a number of concerns with the Conventional Trident Modification proposal including the maturity of the concept of operations and risk of misinterpretation. Do you believe the concerns raised by Congress have been adequately addressed?

General CARTWRIGHT. The Department has worked hard to address congressional concerns. In March 2007, we delivered the Conventional Trident Modification (CTM) Report to Congress which addressed the CTM concept of operations as well as our recommended approaches for addressing misinterpretation. The potential risk of misinterpretation of a CTM missile launch as a nuclear attack is extremely low and can be effectively managed. The United States and the Russian Federation now have a more cooperative and less adversarial relationship than during the Cold War, and this new relationship provides improved transparency and understanding to any launch of a ballistic missile.

Ms. TAUSCHER. According to one press article, the Conventional Trident Modification submarines would use a weapon virtually identical to its nuclear-armed twin; would remain on patrol typically just off Russian coasts, potentially posing at least a debris threat to Russia; would likely be closed to Russian onsite inspection; and would possibly take hours or longer to receive target data and steam within range of nations where fleeting threats may appear. By comparison, this article claims that "a land-based missile could be configured so it is incapable of carrying a nuclear payload and use a trajectory to its target that would not threaten other nuclear weapons nations. It also could be inspected by the Russians under existing arms control regimes, based on a U.S. coastline so launch debris could fall in the ocean rather than on land, and made capable of being rapidly retargeted." What are your views of the merit of this comparison between the Conventional Trident Modification and a possible conventional ICBM?

General CARTWRIGHT. Both land based and sea based prompt global strike capabilities are envisioned to be part of the options available to national leadership in the future. Both land and sea based prompt global strike concepts have unique considerations and characteristics. Our approach to prospective concept of operations and international engagements seeks to minimize constraints and risks and maximize capability. We support continued development of a broad array of prompt global strike options to support tailored deterrence in the 21st century. Conventional Trident Modification (CTM) is a "hedge" opportunity to begin closing the gap, and is part of a broader, time-phased strategy leading to a robust suite of PGS capabilities.

Ms. TAUSCHER. In October 2006, the President issued a new national space policy. How has, or will, this policy affect STRATCOM missions and operations?

General CARTWRIGHT. USSTRATCOM ensures all mission planning, coordination and operations are consistent with National Space Policy. The revised space policy in 2006 served to echo the already on-going efforts at USSTRATCOM in promoting the use of space by all nations for peaceful purposes while preserving our rights, capabilities, and freedom of action in space.

Ms. TAUSCHER. We have seen considerable coverage of the Chinese anti-satellite test since our subcommittee met with you immediately after the January test. Now that the community has had time to reflect on the significance of the event: a. What lessons learned have you taken from the event and what aspects of our space operations need improvement? b. What type of counterspace and space situational awareness systems do you think will be needed in the future to combat threats to space? c. Do you see the priorities for space acquisition outlined in the 2008 President's Budget altered due to the Chinese ASAT test?

General CARTWRIGHT. The Chinese ASAT test increases the risk to the manned and unmanned space assets for all space-faring nations and, as a result we are reexamining our ability to continue to operate effectively in the event of kinetic or non-kinetic ASAT employment by an adversary. The test also reaffirmed our need to increase our space situational awareness (SSA) abilities. The Air Force, as the Executive Agent for Space, identified the need to increase SSA as its number one space funding priority. USSTRATCOM will work closely with the services to define the appropriate SSA architecture, as well as a viable protection strategy for our spacecraft. Vulnerability of low earth orbit satellites to increased space debris caused by destructive testing or direct attack also highlighted the need to rapidly adjust our space readiness levels, and for improved capability to quickly launch and augment or reconstitute a space-based asset. b. First, we must better understand

the "Who, What, Where, and Why" regarding every space based object and activity. Improvements to our ground and space-based Space Situational Awareness (SSA) capabilities will allow us to differentiate between environmental and "man-made" unintentional or malicious effects on the Nation's space assets. Capabilities that incorporate improved defensive space posturing measures may include shutter controls, anti-jamming, sensor detection, proximity warning, enhanced ground facility security, cryptological user equipment protection upgrades and other alternatives. c. Yes. Additional discussion is classified.

Ms. TAUSCHER. What is USSTRATCOM's position on the development of a code of conduct or "rules of the road" for space-faring nations?

General CARTWRIGHT. While existing Treaties and Conventions provide adequate guidance on proper space-faring conduct, we are looking at the potential utility of a code of conduct or "rules of the road" for additional value in providing a common understanding or defining differences in acceptable or unacceptable behavior within a medium shared by all nations.

Ms. TAUSCHER. There are a multiple ways to achieve greater survivability and protection of our space assets—hardening, on-orbit spares, redundancy, distributed architectures, alternatives such as UAVs, active prevention and denial, non-material solutions, and rapid replenishment. a. What is the Department's overall strategy for assuring support from space systems? If possible, please comment on the costs and operational considerations of the different strategies. b. In your opinion, what is the military utility of an operationally responsive space capability?

General CARTWRIGHT. USSTRATCOM is working to better integrate both space and non-space capabilities across multiple domains. This integration extends across our national services and agencies to allied forces and commercial entities. The resulting "network" of capabilities, includes communications, Intelligence Surveillance and Reconnaissance (ISR), and Space Situational Awareness (SSA) sensors, and will maximize our capacity to support the warfighter while providing redundancy to critical assets, reducing potential single-points-of-failure. This approach will diversify our risk portfolio across multiple mediums and multiple participants. Better integration will further transform the warfighter's perspective of space from "platforms and programs" to "capabilities and effects."

Operationally Responsive Space (ORS) will enable improved integration through rapid deployment/employment of new, pre-planned, or existing capabilities. It will link operational, acquisition, industry partners, and science and technology communities to rapidly exploit emergent capabilities to fill operational gaps. ORS will generate warfighting effects for operational and tactical use in response to urgent or unanticipated needs. The focus is on responsiveness. Tasked by a Joint Force Commander, it will be timely and targeted to the need, while enhancing survivability and adversary deterrence. b. The Operationally Responsive Space (ORS) concept is intended to rapidly deliver space capabilities to the Joint Force Commanders. This will enable the warfighter to integrate space capabilities when and where needed to produce the desired effect. ORS strategy includes rapid exploitation of new or innovative space technical and operational capabilities, augmenting space capabilities in time of crisis, and reconstituting capabilities when required. ORS is presently in the experimentation and demonstration phase.

Ms. TAUSCHER. The current national security space architecture is comprised of big, complex, and costly satellite systems which require a decade of development. Cost overruns and schedule delays in space acquisition programs, such as SBIRS-High, GPS–IIF, and NPOESS, continue to be attributed to requirements growth, inadequate cost estimating, and lack of systems engineering, to name a few. a. To what extent have these acquisition issues impacted the warfighter? b. What changes to the current and programmed national security space architecture would you recommend? c. TSAT and Space Radar are costly "transformational" programs. In this budget constrained environment, is it wise for DOD to invest so much of its resources in systems that will not be available until 2016 at the earliest? Should the DOD reconsider its transformation goals and concentrate on providing users with evolved or cloned systems based on those currently under development?

General CARTWRIGHT. Freedom of action in space requires the dexterity to counter or out pace threats that are always evolving. The Nation continues to depend on complex, robust systems to provide our warfighters the necessary tactical, operational and strategic advantage. One of the focus areas for space acquisition is continuity of service, especially in missile warning, strategic communications, and positioning, navigation, and timing. Delays in these programs could jeopardize the assured continuity of space support to the warfighter.

Delaying the capabilities provided by these systems impacts the warfighter with increased reliance on aging less reliable, less responsive systems. This may result in delay information delays and reduced battlefield decision cycles at all echelons.

b. USSTRATCOM is working to better integrate both space and non-space capabilities across multiple domains. This integration extends across our national services and agencies to allied forces and commercial entities. The resulting "network" of capabilities, includes communications, Intelligence Surveillance and Reconnaissance (ISR), and Space Situational Awareness (SSA) sensors, and will maximize our capacity to support the warfighter while providing redundancy to critical assets, reducing potential single-points-of-failure. This approach will diversify our risk portfolio across multiple mediums and multiple participants. Better integration will further transform the warfighter's perspective of space from "platforms and programs" to "capabilities and effects."

Operationally Responsive Space (ORS) will enable improved integration through rapid deployment/employment of new, pre-planned, or existing capabilities. It will link operational, acquisition, industry partners, and science and technology communities to rapidly exploit emergent capabilities to fill operational gaps. ORS will generate warfighting effects for operational and tactical use in response to urgent or unanticipated needs. The focus is on responsiveness. Tasked by a Joint Force Commander, it will be timely and targeted to the need, while enhancing survivability and adversary deterrence. c. USSTRATCOM continuously looks to balance the promise of transformational capability advances with evolved capabilities. We continue to advocate for the attributes inherent in TSAT and Space radar. An incremental/block approach coupled with these attributes:

—Integration across domains

—Integration of allied communications capabilities

—Diversified risk portfolios

Ms. TAUSCHER. Some have observed a "friction" between the DOD and Intelligence Community on space matters. a. What areas of black-white space integration need improvement? b. In your opinion, is the current national security space organization and management structure responsive to the warfighter? c. If not, what changes to the organization and management would you recommend?

General CARTWRIGHT. Black-white space integration continues to improve. A far more collaborative operational relationship exists today than in the past. Numerous operational examples of collaboration include the sharing of data and best practices. Data previously held only in black channels is now routinely passed to white world operators to help build a comprehensive space activity picture. In our organization and management areas, there are many successes, which include crossflow of personnel and the establishment of the NRO's Deputy Director for Mission Support wearing a second hat as the Deputy Commander of my Joint Functional Component Command for Space. These initiatives further reinforce on-going collaboration efforts and improve situational awareness for both the black and white communities. We continue working with the intelligence community on issues of classification. b. Recent national security space organizational and management structure changes continue to facilitate responsiveness to the joint warfighter. The establishment of the USSTRATCOM Joint Functional Component Command for Space (JFCC SPACE), designation of the Deputy Director of Mission Support for the National Reconnaissance Office to serve as the JFCC Space Deputy Commander, and the establishment of a Director of Space Forces (DIRSPACEFOR) within the theater for support to the Joint Force Commander have been positive steps to improve integration of space capabilities into joint operations. c. There are no additional organization and management changes needed at this time. We continue to look for ways to improve our support to warfighters around the globe.

Ms. TAUSCHER. In 2002, former Secretary of Defense Rumsfeld exempted the Missile Defense Agency from the normal DOD requirements process. In understand that STRATCOM and MDA have developed a new program called the Warfighter Involvement Program (WIP) to ensure warfighter views are incorporated into the missile defense development process. To date, are you satisfied with WIP process? Are there areas where the process could be improved?

General CARTWRIGHT. The Warfighter Involvement Process (WIP) has become the accepted means for advocacy of needed missile defense capabilities; however, the process is still growing to meet the demands of the warfighter. We are working with the Missile Defense Agency to develop a single document describing our respective roles, responsibilities, and objectives under the Warfighter Involvement Process (WIP). Creation of this formal document establishes a reference for the entire missile defense community and serves as the standard against which we may gauge future process improvements.

Ms. TAUSCHER. In the 2006 Prioritized Capability List (PCL), the annual list that STRATCOM provides to MDA outlining the warfighter's prioritized list of capability needs for future missile defense systems, you outlined a number of key require-

ments. These included, among others: ensuring missile defense communications; maintaining the operational availability of the GMD system; and expanding our capability to defeat ballistic missiles in their terminal phase. To what extent has MDA been responsive to STRATCOM's requirements as outlined in the PCL? What areas need improvement?

General CARTWRIGHT. MDA adheres to a capabilities-based ballistic missile defense systems acquisition approach. To enhance warfighter needs and system development efforts, MDA has partnered with USSTRATCOM to develop the Warfighter Involvement Process (WIP). The WIP enables prioritized guidance on needed Combatant Commander capabilities to MDA's developmental efforts. MDA has announced plans to focus their 2007 Summer Study around the just delivered second iteration of USSTRATCOM prioritized capabilities list (PCL). By taking this approach, MDA has clearly indicated their willingness to further incorporate warfighter needs into system development and acquisition processes. We continue to improve and refine our Warfighter-MDA information exchange processes. This includes better definition of the capabilities sought in the PCL and greater granularity in the capability development plans included in MDA's PCL response. Development continues on an effective means for warfighter appraisal of these development plans.

Ms. TAUSCHER. MDA (and its legacy organizations SDIO and BMDO) is first and foremost a research and development organization, whose primary responsibility is to develop future capabilities. Because the services have generally been reluctant to assume responsibility for fielding missile defense capabilities, MDA has been forced to take up the slack. Given its new and emerging missions, is MDA currently structured to provide optimal support to the warfighter? If not, what changes to MDA's current structure would you recommend?

General CARTWRIGHT. MDA is an effective research and development activity that focuses on warfighter BMD needs. Recently, MDA leadership activated the Warfighter Support Center, located at Schriever Air Force Base. The Warfighter Support Center's mission is to coordinate enhanced operations and logistics support to warfighting activities. We are begnning to take steps to integrate the BMD architecture with the appropriate Cruise Missile Defense (CMD) architecture. Military Services are developing CMD capabilities independent of a warfighter-centeric architecture that integrates command and control, battle management, sensors, and weapons across these service capabilities. Integrating these CMD architectures with those of BMD is problematic when CMD lies outside MDA's charter. MDA is focused on providing products and services that meet warfighter needs. An example of MDA effectiveness includes the BMDS Transition and Transfer planning process which provides a framework for the operationalization of BMDS elements. We should leverage the ballistic missile defense work MDA has completed to date by expanding their focus to include cruise missile defense configuration and architecture. A MDA configuration management role over service Cruise Missile Defense (CMD) capabilities, responsive to a single Air and Missile Defense Integrating Authority that would balance and integrate MDA BMD and service CMD development would ensure common data standards, command and control, and situational awareness integration.

Ms. TAUSCHER. In 2002, the Unified Command Plan (UCP) assigned STRATCOM responsibility for planning, coordinating, and integrating global missile defense operations. However, mission execution (i.e., pulling the trigger) remains the responsibility of each geographic combatant commander in their respective area of responsibility (AOR). Do you believe you currently have sufficient authority to "adjudicate" disputes that could arise between combatant commanders during missile defense operations? How are you using your current authorities, as outlined in the UCP, to minimize disputes from occurring?

General CARTWRIGHT. We do not have the authority to adjudicate disputes, rather we provide a recommendation for leadership to consider in the deliberation and decision process. We provide supporting capabilities to enable mission execution by designated geographical combatant commanders. Where issues arise over prioritization of forces, through the Request for Forces (RFF) process, we provide a recommendation to the Global Force Management Board in determining allocation of high demand missile defense forces. We conduct collaborative planning and work with the Combatant Commands (COCOMs) to resolve areas where disagreements arise. One avenue is the Ballistic Missile Defense System (BMDS) Management Structure, with representatives from the OCOMs, Missile Defense Agency (MDA), and other partners to resolve issues at an early stage. This has been successful to date in resolving issues. We continue to conduct wargames such as Nimble Titan and exercises with Combatant Commanders to increase our knowledge of ballistic missile defense operations. We insert new knowledge and lessons learned into current operational procedures and plans.

Ms. TAUSCHER. STRATCOM recently completed a Capabilities Mix Study, which outlines the combatant commander's future missile defense force structure requirements. What were the key findings from that study? How were the results of that study taken into account in the President's FY08 budget request?

General CARTWRIGHT. USSTRATCOM participated in the Joint Staff-led Joint Capabilities Mix (JCM) Study that explored weapon and sensor mixes to counter expected threats in three major operation areas in future epics. Part I recommended an increase to the number of Terminal High Altitude Area Defense (THAAD) Firing Units and interceptors, an increase of Standard Missile (SM–3) interceptors, and continued support of the Sea-Based Terminal program. Once approved, Part II (completed in March 2007) will provide an initial recommendation for the minimum number of upper-tier THAAD and SM–3 interceptors required for combat operations in 2015 for a near-simultaneous two MCO fight. Joint Staff-led Joint Capabilities Mix (JCM) I concluded in April 2006 and influenced MDA's programmatic decisions to increase the number of Terminal High Altitude Area Defense (THAAD) Firing Units and interceptors, increase the number of SM–3 interceptors, and continue support of the Sea-Based Terminal program.

Ms. TAUSCHER. In the past, combatant commanders have expressed concern that they do not have sufficient numbers of PATRIOT PAC–3 missiles and sea-based Standard Missile-3 interceptors to deal with short, medium, and intermediate range missile threats. Are you satisfied with the current number of Patriot PAC–3 missiles and Standard Missile-3 interceptors in the inventory? If not, have you raised this issue with the Army, the Office of the Secretary of Defense, and the Missile Defense Agency? What has been their response?

General CARTWRIGHT. We will make appropriate recommendations on the missile inventory as we continue to define and demonstrate Terminal High Altitude Area Defense capabilities (THAAD). We believe that THAAD effectiveness will have significant impact on the interceptor mix quality. In response the Army has increased the buy of PAC–3 missiles, and, as a result of the Joint Capabilities Mix (JCM) Study (JCM I concluded in April 2006), MDA has increased the number of programmed Terminal High Altitude Area Defense (THAAD) Firing Units and interceptors, increased SM–3 interceptors, and started a Sea-Based Terminal program. However, interceptors alone are not sufficient to meet the threat posed by potential adversaries. USSTRATCOM is uniquely structured to leverage and synchronize other capabilities, such as attack operations and non-kinetic options, in support of the geographic combatant commanders.

Ms. TAUSCHER. The President's FY08 budget request contains sufficient funding for the deployment of a European missile defense site. For a number of reasons, deploying long-range interceptors in Europe will raise serious command and control challenges. To what extent have STRATCOM and other combatant commander begun to plan to operate a European missile defense site? What do you believe are the key command and control challenges associated with a European missile defense site?

General CARTWRIGHT. We have just begun to work with USEUCOM and USNORTHCOM for operations of the Ground-Based Interceptors and Midcourse Discriminating Radar in Europe, but have not yet developed a formal operations concept.

(1) Coordinating the Command and Control relationships.

(2) The integration with current and emerging NATO systems and C2 architectures (Active Layered Theater BMD, and the possible NATO Missile Defense Feasibility Study-recommended capabilities).

(3) Bilateral support arrangements with Host Nations.

Ms. TAUSCHER. In 2004, STRATCOM conducted a Military Utility Assessment of the initial set of ground-based missile defense capabilities deployed in California and Alaska. The purpose of this assessment was to determine how military effective those capabilities were. That said, how confident are in the current capabilities resident in the GMD system? Are there areas where you believe improvements need to be made? Do you have any plans to conduct another Military Utility Assessment of the GMD system in the near future?

General CARTWRIGHT. We assess that the Ballistic Missile Defense System (BMDS) has the potential to defend the homeland, deployed forces, friends, and allies against a limited attack of from ballistic missile threats. Command and Control and Battle Management are areas where we need to continue improving. MDA and the Services continue to develop and provide BMD and Cruise Missile Defense (CMD) weapons, sensors, and command and control systems. The effective use and integration of the C2 and Battle Management capabilities remains the warfighters

greatest challenge. The Combatant Commands, MDA, and Service Force Providers continue to work together to develop and implement our tactics techniques and procedures for fighting with these expanding capabilities. Version 2007 of the BMDS MUA has completed general/flag officer coordination and once finalized will be forwarded to the Chairman of the Joint Chiefs of Staff.

QUESTIONS SUBMITTED BY MR. EVERETT

Mr. EVERETT. The Air Force indicates that it intends to start retiring U–2 aircraft in FY 2008—one in FY08, five in FY09, eight in FY10, one in FY11, and fifteen in FY12. Last year, Congress prohibited U–2 retirement unless the Secretary of Defense could certify it no longer contributed to mitigating ISR gaps identified in the Pentagon's 2006 Quadrennial Defense review. a. Given the issue you raise in your testimony about warfighter information needs not being met, is this retirement in the best interest of the nation? b. In your testimony, you mentioned we can afford to take risks in some mission areas. What mission areas will see greater risk given the retirement profile of the U–2? c. In what timeframe do you anticipate follow-on capabilities with equal or greater capability to be proven and fielded, and how might current budget constraints or programmatic issues associated with potential follow-on systems impact this fielding timeline?

General CARTWRIGHT. USSTRATCOM conducted a study that evaluated the Department's plan to replace the U–2 with Global Hawk and determined that the U–2 drawdown introduced regional risk but did not result in a significant reduction in enterprise capacity or cause a technical collection gap. As a result, the Air Force revised their U–2 to Global Hawk transition plan to cover the STRATCOM identified regional risk and ensure continued support of the combatant commander's intelligence requirements. This plan sequences the U–2 divestiture with successful demonstration of Global Hawk capabilities to ensure no overall loss of high altitude airborne ISR capability.

b. Transition to Global Hawk provides for persistent coverage not today available from legacy systems such as U–2s, effectively increasing coverage by a factor of 2–3 times. The current Air Force U–2 to Global Hawk transition plan addresses regional risk identified by USSTRATCOM, sequencing the U–2 divestiture with successful demonstration of Global Hawk capabilities to ensure no overall loss of high altitude airborne ISR capability.

c. The Global Hawk program has undergone restructuring due to Nunn-McCurdy requirements, to include its fielding schedule. Fielding of the block 30(M) Global Hawk aircraft will provide an integrated, multi-intelligence sensor suite consisting of electro-optical, synthetic aperture radar, and signals intelligence payloads, providing greater capability and more flexibility than the U–2. Block 30(M) aircraft will begin arriving in the field starting in FY11. Global Hawk will enable increased mission duration, greater area coverage, and signals, radar, and imagery collection simultaneously from one aircraft on one mission, resulting in greater intelligence, surveillance, and reconnaissance (ISR) effects delivered to our joint warfighers. Unanticipated resource challenges could extend the transition. Platform "offramps" have been developed to ensure no loss in capability.

Mr. EVERETT. Does STRATCOM see any barriers to fully implementing the Joint Intelligence Operations Centers (JIOCs)? If so, what are they?

General CARTWRIGHT. USSTRATCOM does not foresee any barriers to fully implementing the Joint Intelligence Operations Centers (JIOCs).

Mr. EVERETT. Please provide your assessment of the state of black-white space integration. What is working well and what areas need improvement? Consider this question in the context of operations, planning and acquisition, and organization and management.

General CARTWRIGHT. Black-white space integration continues to improve. A far more collaborative operational relationship exists today than in the past. Numerous operational examples of collaboration include the sharing of data and best practices. Data previously held only in black channels is now routinely passed to white world operators to help build a comprehensive space activity picture. In our organization and management areas, there are many successes, which include crossflow of personnel and the establishment of the NRO's Deputy Director for Mission Support wearing a second hat as the Deputy Commander of my Joint Functional Component Command for Space. These initiatives further reinforce on-going collaboration efforts and improve situational awareness for both communities. We continue working with the intelligence community on issues of classification.

Mr. EVERETT. How will the Chinese anti-satellite test affect the warfighter's priorities in space? How do you foresee this event affecting the composition and attributes of our national security space architecture?

General CARTWRIGHT. The Chinese ASAT test increases the risk to the manned and unmanned space assets for all space-faring nations. We are re-examining our ability to continue to operate effectively in the event of kinetic or non-kinetic ASAT employment by an adversary, to include the use of both space- and terrestrially based capabilities. The test also reaffirmed our need to increase our space situational awareness (SSA) abilities. The Air Force, as the Executive Agent for Space, identified the need to increase SSA as its number one space funding priority. USSTRATCOM will work closely with the services to define the appropriate SSA architecture, as well as a viable protection strategy for our spacecraft. Vulnerability of low earth orbit satellites to increased space debris caused by destructive testing or direct attack also highlighted the need to rapidly adjust our space readiness levels, and for improved capability to quickly launch and augment or reconstitute a space-based asset.

Mr. EVERETT. In the 2006 Prioritized Capability List (PCL), the warfighter's list of prioritized missile defense capability needs, STRATCOM outlined a number of key requirements. These included, among others: ensuring missile defense communications; maintaining the operational availability of the GMD system; and expanding our capability to defeat ballistic missiles in their terminal phase. a. To what extent has MDA been responsive to STRATCOM's requirements as outlined in the PCL? b. What areas need improvement?

General CARTWRIGHT. MDA adheres to a capabilities-based ballistic missile defense systems acquisition approach. To enhance warfighter needs and system development efforts, MDA has partnered with USSTRATCOM to develop the Warfighter Involvement Process (WIP). The WIP enables prioritized guidance on needed Combatant Commander capabilities to MDA's developmental efforts. MDA has announced plans to focus their 2007 Summer Study around the just delivered second iteration of USSTRATCOM Prioritized Capabilities List (PCL). By taking this approach, MDA has clearly indicated a willingness to further incorporate warfighter needs into system development and acquisition processes. b. We continue to improve and refine our Warfighter-MDA information exchange processes. This includes better definition of the capabilities sought in the Prioritized Capabilities List (PCL) and greater granularity in the capability development plans included in MDA's PCL response. We are also looking at the possibility of integrating the development of Cruise Missile Defense capabilities with ongoing Ballistic Missile Defense System (BMDS) efforts.

Mr. EVERETT. To what extent are the Combatant Commanders influencing the Services force structure planning? More specifically, to what extent are the COCOMs missile defense requirements being incorporated into the Services long-term operational force structure sizing?

General CARTWRIGHT. In general, combatant commanders influence Service force structure planning through Senior Leadership Review Groups as part of the Planning, Programming, Budgeting, and Execution Process; annual Integrated Priority Lists (IPL); and Joint Capabilities Integration and Development System (JCIDS) processes. For missile defense, combatant commanders present their capability needs to the Missile Defense Agency (MDA) via the Warfighter Involvement Process (WIP) and the Prioritized Capabilities List (PCL). As systems are developed and mature, MDA uses the BMDS Transition and Transfer planning process as the venue where developmental and fielding plans, through negotiations with designated lead Services, are incorporated into Service force structure planning.

Mr. EVERETT. Assume for a moment that the nation did not go forward with RRW but rather maintained the existing stockpile through stockpile stewardship and Life Extension Programs (LEPs), then fast forward 10–15 years from now. Do we start to take risk and if so, in what areas? What impact would this have on our nation's stockpile readiness and the ability of the stockpile to meet our nation's strategic deterrence needs?

General CARTWRIGHT. A long-term strategy based on extending the life of legacy warheads leaves the nation heavily reliant on a limited number of aging, increasingly costly and difficult to maintain warhead types for its nuclear deterrent. Such a strategy does not adequately exercise the facilities, scientists, engineers, and technicians needed for a responsive infrastructure. Many of our legacy warhead types need to be refurbished or replaced over the next several decades when the scientists, engineers and technicians that developed, tested and fielded legacy nuclear weapons will be retired.

As a result, we continue to maintain a large and costly "hedge" of non-deployed warheads to mitigate the risks of technological and/or operational surprise. It is dif-

ficult to predict if, or when, the current strategy may become unsustainable or when we will face a technical challenge we may not be able to resolve without testing. Delaying transformation until we reach that point may put stockpile readiness and the nuclear deterrent at significant risk.

Life Extension Program strategies address individual component issues without regard to end-to-end design. Eventually, (10–15 yrs.) the number of component changes compromizes our ability to certify in the absence of testing.

○