

**DEPARTMENT OF DEFENSE AUTHORIZATION FOR  
APPROPRIATIONS FOR FISCAL YEAR 2005**

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**HEARINGS**

BEFORE THE

**COMMITTEE ON ARMED SERVICES**

**UNITED STATES SENATE**

**ONE HUNDRED EIGHTH CONGRESS**

SECOND SESSION

ON

**S. 2400**

AUTHORIZING APPROPRIATIONS FOR FISCAL YEAR 2005 FOR MILITARY  
ACTIVITIES OF THE DEPARTMENT OF DEFENSE, FOR MILITARY CON-  
STRUCTION, AND FOR DEFENSE ACTIVITIES OF THE DEPARTMENT OF  
ENERGY, TO PRESCRIBE PERSONNEL STRENGTHS FOR SUCH FISCAL  
YEAR FOR THE ARMED FORCES, AND FOR OTHER PURPOSES

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**PART 7**

**STRATEGIC FORCES**

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FEBRUARY 25; MARCH 24, 25; APRIL 7, 2004



**DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 2005—Part 7**  
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**DEPARTMENT OF DEFENSE AUTHORIZATION  
FOR APPROPRIATIONS FOR FISCAL YEAR  
2005**

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**WEDNESDAY, FEBRUARY 25, 2004**

U.S. SENATE,  
SUBCOMMITTEE ON STRATEGIC FORCES,  
COMMITTEE ON ARMED SERVICES,  
*Washington, DC.*

**DEPARTMENT OF ENERGY'S OFFICE OF ENVIRON-  
MENTAL MANAGEMENT, OFFICE OF FUTURE LIABIL-  
ITIES, AND OFFICE OF LEGACY MANAGEMENT**

The subcommittee met, pursuant to notice, at 2:29 p.m. in room SR-232A, Russell Senate Office Building, Senator Wayne Allard (chairman of the subcommittee) presiding.

Committee members present: Senators Allard, Graham, and Nelson of Florida.

Committee staff members present: Leah C. Brewer, nominations and hearings clerk; and Alison E. Brill, receptionist.

Majority staff members present: L. David Cherington, counsel; and Scott W. Stucky, general counsel.

Minority staff member present: Madelyn R. Creedon, minority counsel.

Staff assistants present: Michael N. Berger and Sara R. Mareno.

Committee members' assistants present: Jayson Roehl, assistant to Senator Allard; and William K. Sutey, assistant to Senator Bill Nelson.

**OPENING STATEMENT OF SENATOR WAYNE ALLARD,  
CHAIRMAN**

Senator ALLARD. I call this meeting of the Strategic Forces Subcommittee to order. The ranking member is going to be a little bit late, but he will show up. Some of the members will come and go today. I want to go ahead and make my opening statement and then go ahead and get testimony from our panel this afternoon.

I would like to thank our panel. We have a couple of witnesses that I am anxious to hear from. First, the Honorable Jessie Hill Roberson, Assistant Secretary of Energy for Environmental Management (EM); and Michael W. Owen, who is Director of the Office of Legacy Management (LM), Department of Energy (DOE). I will have quite an extensive questioning period, I think, for both of you. So in a way it is a blessing, because I can go ahead and put all of this in the record together.

Let me go ahead and get my opening statement out of the way, and I want to thank both of you for being willing to join us today and letting us hear from you.

I would like to thank our witnesses for appearing before the Strategic Forces Subcommittee today and providing testimony about the DOE's vision for cleanup and closing all of the environmental sites and facilities. I also look forward to the testimony on the subsequent challenges of handing over the long-term stewardship and personnel responsibilities to the newly created LM. I look forward to hearing your testimony.

I am especially pleased to have this hearing on the fiscal year 2005 budget request for EM, which at most is the last full fiscal year authorization and appropriation for cleanup at Rocky Flats. I hope I am not being overly optimistic. I want to express my compliments and sincere appreciation to assistant Secretary Jessie Roberson for her unwavering dedication and focus which led to this success.

In 1996, then as manager of the DOE's Rocky Flats field office, Jessie Roberson was part of a small group of visionaries who first conceived of the closure of Rocky Flats by 2006, 60 years ahead of schedule. Madam Secretary, you have shown enormous leadership and courage when there were more voices saying it could not be done and it should not be done. Despite those criticisms, you stayed the course.

I know there are still big challenges to face at Rocky Flats these next 2 years and I have full confidence in your abilities. Similar efforts and success are being realized at the Fernald and Mound sites in Ohio.

The vision which you brought to these first three closure sites along with Under Secretary Bob Card and many others was a vision to challenge the status quo, a status quo which sought to comply but not clean up, to measure success by how many milestones were met without first considering where those markers were placed. Your visionary plan sought to reduce the risks to workers, the community and the environment, and thereby accelerate cleanup and closure. Implementing a plan to lower these risks seems like common sense today, but was seen as risky and impossible just a few years ago.

Now this vision is being spread to the remaining EM sites, including Hanford, Idaho, Oak Ridge, and the Savannah River site. There have been some voices of doubt about whether accelerating cleanup and reducing risks to the workers, community, and the environment makes sense. I would encourage those few voices to take a look at what can happen when the community helps find a way to accelerate the cleanup.

Rocky Flats was originally scheduled to be closed in 2065, with special nuclear materials remaining on the site for most of that period. Today in 2004, there are no special nuclear materials on Rocky Flats and we will have a national wildlife refuge for the community within the next couple of fiscal years. Fernald and Mound will return valuable land to their communities which can be used to cultivate new opportunities.

I am pleased that the challenges of closing these EM sites are being faced head on as you have mapped out closure of the remain-

ing EM sites by 2035 or sooner, which is 35 years sooner than the original DOE baseline, with a savings of untold billions of dollars in life cycle costs. However, new challenges seem to be emerging, including capping the scope of the EM program, addressing current and future waste streams within the Nuclear Safety Account (NSA), creating a new Office of Future Liabilities to address disposition of facilities which fall outside of the scope of the EM program, and making sure there is a smooth transition for workers, environment, and community as the first major EM sites are closed. I would say that without the workers and their dedication none of this would have been possible.

To help maintain the momentum to accelerate closure of the EM sites, DOE has defined the entire scope of the EM program. While this approach should give the EM program the focus it needs to bring the remaining closure sites to a final disposition, it also challenges the remaining programs within the DOE to address their own environmental and waste management issues. I am not certain the National Nuclear Security Administration (NNSA) is fully engaged in dealing with their own wastes, especially if this is to include all the cleanup responsibilities currently being conducted by EM.

I am also not certain if DOE has anticipated this new responsibility for NNSA in their budget. I am interested to know how the budget expertise and infrastructure within the EM program is being shared with the other DOE programs so they do not have to reinvent the cleanup technologies and the technologies which are now running so well within the EM program.

I recognize that this is a discussion to be continued when the Secretary of Energy appears before the full committee next month, but I want to know how engaged EM is in this apparent transfer of responsibilities.

I also have some questions about the new Office of Future Liabilities which is proposed in the fiscal year 2005 budget. It is my understanding that this program is supposed to take on those environmental restoration and waste management issues which fall outside the scope of the EM program, which has been capped, but do not fall within the scope of the DOE programs to deal with themselves. Also, Future Liabilities is only supposed to take on environmental cleanup work until 2025, which is at or before the completion of the EM sites.

I am interested to know more about how the Future Liabilities program has been set up and how DOE will define the Future Liabilities program's work scope as unique in comparison to the environmental cleanup by NNSA or the other DOE programs. While accelerated cleanup of our EM sites is proceeding well, I have growing concerns about a smooth transition. If we want the workers, communities, and stakeholders to embrace the accelerated closure concept, then we need to ensure that there is a smooth transition at the three major sites scheduled for closure by 2006. That is Rocky Flats, Fernald, and Mound.

Once the cleanup is completed, the EM program will no longer have a presence in the community. However, it is very important that DOE have an active presence. This responsibility will largely fall to LM.



Mr. Owen, as we discussed in the past, I think it is very important that at the current closure sites in Colorado and Ohio there is a storefront in each of these sites to help with the smooth transition. I envision the storefronts as a central clearinghouse for inquiries, a worker and community response center. The people working at these worker and community response centers need to be prepared to answer the questions that the workers will have about their pension and health benefits and to ensure that there is a continuity of services to address their concerns. There also needs to be someone there who is also accountable to the community about ongoing environmental stewardship.

I do not envision a large enterprise, but it needs to be robust enough to handle whatever the traffic may bear. I am not saying this office will always have to be run by Federal personnel. In fact, it is my understanding that you may be trying to work out a plan that will eventually turn this responsibility over to a contractor-supported enterprise. I do not object to this as long as it meets the needs of the workers and the communities.

We have an opportunity to smoothly move from an EM site that is active with cleanup activities to a closed site which still has responsibilities to the workers and the community. If DOE does this right, the remaining closure sites will be ready to move in that direction. If the word on the street is that the workers and the communities were not treated well after the closure, then I believe you are placing accelerated closure at the other sites at risk.

That means that the workers feel that they were taken care of by DOE. It also means that the workers are not penalized for that acceleration by receiving a reduction in their pension when one of the variables of their pension formula is length of time. It means that the workers can go to a knowledgeable individual and get answers to tough questions, someone who is trained and can address the concerns of the workers as well as community leaders and other stakeholders.

In each of your testimonies, I hope you will provide some specific plans for how EM and LM plan to ensure the smooth transition is met. Last year you spoke before this subcommittee about a seamless transition. That will be a tall order, but I believe that that is the target you should be aiming for.

Secretary Roberson and Mr. Owen, thank you for your service to our Nation. We look forward to your opening statements and then I will recognize the ranking member, Senator Bill Nelson, for his statement whenever he wishes to make it. Secretary Roberson, it is good to have you here.

**STATEMENT OF HON. JESSIE HILL ROBERSON, ASSISTANT SECRETARY OF ENERGY FOR ENVIRONMENTAL MANAGEMENT**

Ms. ROBERSON. Thank you, sir. Good afternoon and thank you, Chairman Allard.

I would like to begin by conveying the Department's appreciation to you for your investment in our accelerated cleanup program. Your support is allowing us to witness the dramatic results we forecast a short 2 years ago. I am here today to discuss President Bush's fiscal 2005 budget request for the EM program and its goals

of sustaining the momentum that our work force has worked so hard to achieve, a momentum that benefits the vibrancy of our communities, our environment, and our economy.

In these last 2 years, we have introduced dynamic reforms delivering fundamental change and achieving significant improvements in health, safety, and environmental protection. With your support, these reforms are fully ingrained in our operations and business processes. We are making a historic contribution to reducing the financial liability associated with the legacy of the Cold War.

Last year when I spoke to you, I stated that I was not satisfied with our progress. We must continue to better our performance and to look beyond the status quo, to achieve results that are truly groundbreaking for the benefit of the generations that follow us. I challenge our work force, our partners, and myself and all those interested in joining us in our vision of accelerated cleanup to put their most innovative ideas and people forward.

I am proud to announce that, with our combined efforts, our objective of accelerating environmental cleanup and risk reduction by 35 years and saving the taxpayers in excess of \$50 billion has become a reality. With your support and our continued keen focus on cleanup and closure, the momentum can continue.

I would like to take a moment to underscore the impacts of refocusing the EM program. We have improved safety performance. We are committed to instilling this philosophy into every worker's day-to-day decisions from start to finish of every project. To that end, with top-quality safety standards, we are demonstrating that we can accelerate work and improve safety performance at the same time. We have not, nor will we, stop paying attention to safety. We will continue to "raise the bar" and hold ourselves accountable to the highest standard. Complacency is not acceptable in our advancing the safe conclusion of our cleanup objectives.

We have demonstrated cleanup results and risk reduction. Last year we set a new floor for performance not yet seen in this program. I say "floor" because we see this as a level of performance that we will continue to build on. Over the last 2 years, for example, six of nine nuclear fuel basins de-inventoried, none of which were in our plan before. Four thousand, one hundred of 5,900 containers of plutonium have been packaged. We are almost complete. Over 1,300 of 2,400 metric tons of spent nuclear fuel repackaged—these are activities that the work force have accelerated in the last 2 years.

I can go on with examples and would really love to, but I know we have other things to get on with. Our corporate performance measures, which I have included in my written statement, further demonstrate our deeds and, in combination with exceptional safety performance, we have accomplished consequential outcomes important to the public, our communities, and for the generations to follow us.

Two years ago the EM program was described as lacking a risk-based cleanup approach and the hazards at DOE sites and the liability associated with them did not appear to dictate the need for urgency. Innovative actions in all elements of the EM program were needed to transform EM's processes and operations to reflect the new accelerated risk reduction cleanup paradigm.

We are more than ever encouraging innovation in safety performance, in accelerated risk reduction, and in business management. We believe that providing an atmosphere that encourages innovation can reduce risk to workers and the environment faster, and save resources to be reinvested in furthering the priorities of each of the sites.

Tying all these accomplishments together has been our driving force to improve performance in our acquisition strategy specifically.

Legal actions and court decisions may direct us to alter or modify our activities from the accelerated cleanup and closure path. We are committed to work diligently with all concerned parties to avoid interruptions in reducing risk where we can. This year has seen dramatic results demonstrating our steadfast belief that continuing on the accelerated path will resolve the problems that lie before us. We must not lose our momentum that has so earnestly been established by the work force.

As with all new enterprises, impediments will be many, but we are committed to employ our resources to continue to show meaningful results, and we are taking a very staunch view of results. The job isn't done yet. We can't be complacent. We must continue to do better. It is not done when we develop a plan. It is not done when we agree on a milestone. It is not done when we ask for funding. It is not done when we sign a contract. It is not done when we get money. It is not done until it is done and there is positive and measurable risk reduction for the investment made.

I ask for your support of our fiscal year 2005 budget request of \$7.43 billion to continue this momentum. We are safer today than we were last year and we must stay the course so that we are safer next year than today. We have accelerated cleanup by at least 35 years, saving over \$50 billion. The potential is there to lose what we have gained should we fail to stay focused on our commitment.

I look forward to working with Congress and others to achieve this goal and I thank you, Mr. Chairman.

[The prepared statement of Ms. Roberson follows:]

PREPARED STATEMENT BY HON. JESSIE H. ROBERSON

Mr. Chairman and members of the subcommittee, I am delighted to be here today to convey the Department of Energy's (DOE) appreciation for your support of the Environmental Management (EM) program, without which the dramatic results in accelerating the cleanup of the legacy of the Cold War would not be possible. I welcome this opportunity to sit before you and report on our progress, the potential gains and risks that lie before us, and the importance of sustaining the momentum that our workforce has labored so hard to achieve—a momentum that benefits the vibrancy of our communities and the environment.

Two eventful years have passed since the release of the Top-to-Bottom Review of the EM program. In these last 2 years, we have taken decisive steps to transform a program focused on managing risk to a core mission-focused program that is accelerating risk reduction and cleanup. We have introduced dynamic reforms, delivering fundamental change and achieving significant improvements in health, safety, and environmental protection. With your support and these reforms fully ingrained in our operations and business processes, we are demonstrating that this bold strategy to accelerate risk reduction and cleanup has made a historic contribution to reducing the financial liability associated with the legacy of the Cold War. As cited in the U.S. Department of Treasury 2002 Financial Report to the United States Government, "the recognized cost of cleaning up environmental damage/contamination across government programs was estimated to be \$273.0 billion, as compared to \$306.8 billion for September 30, 2001. A significant component of this reduction re-

lates to the DOE. It reduced its environmental liability by \$28.7 billion, mostly due to employing an accelerated cleanup approach resulting from a top-to-bottom review to find efficient and cost-effective ways to achieve greater real cleanup and risk reduction to public health.” But that is not the whole story.

Last year when I spoke with you, I stated that I was not “satisfied” with our progress. We must continue to better our performance and to look beyond the status quo to achieve results that are truly groundbreaking for the benefit of the generations that follow us. I challenged our workforce, our partners, and myself and all those interested in joining us in our vision of accelerated cleanup to put their most innovative ideas and people forward. I am proud to announce that with our combined efforts, our objective of accelerating environmental cleanup and risk reduction by 35 years and reducing estimated program costs in excess of \$50 billion has become a reality. With your support and our continued keen focus on the cleanup and closure, the momentum can continue.

For fiscal year 2005, the President’s budget includes a record \$7.43 billion for the accelerated cleanup program, the peak year in our funding profile. As we identified last year, the administration believes that this investment is crucial to the success of accelerated risk reduction and cleanup completion. We anticipate funding will then decline significantly to about \$5 billion in 2008.

The EM portion of the fiscal year 2005 congressional budget is structured analogous to last year. The budget structure focuses on completion, accountability, and visibility; institutionalizes our values; and integrates performance and budget. Requested funding can clearly be associated with direct cleanup activities versus other indirect EM activities.

Within the Defense Site Acceleration Completion Appropriation, the budget reserves \$350 million for a High-Level Waste Proposal. With the Idaho District Court decision on Waste Incidental to Reprocessing, the Department’s ability to proceed prudently with accelerated risk reduction for some activities is drawn into question. The decision makes it difficult, if not impossible, for us to undertake planned actions at Idaho, Hanford, and the Savannah River Site to aggressively reduce risks posed by wastes stored in tanks at those sites—actions we had committed to take, in agreement with our host states, before the court decision. The decision now means we are likely to leave tank wastes in place longer while we try to resolve issues created by the decision—a course that has significant societal and monetary costs. This \$350 million supports activities normally funded from the 2012 Accelerated Completions account and from the 2035 Accelerated Completions. These funds will be requested only if the legal uncertainties are satisfactorily resolved.

In alignment with ongoing departmental missions, this budget reflects a transfer of multiple activities that are not core to the EM mission to other departmental elements. These transfers provide the responsible and accountable mission programs with the resources and tools to achieve their objectives at the expected performance level. This accountability model is the key to moving each of the enterprises or missions of the DOE forward in attaining the desired outcomes and results important to the administration and supporting our accelerated risk reduction and closure initiative. Transfers include:

- Transferring Federal staff at the Pacific Northwest National Laboratory to the Office of Science and Federal staff at Headquarters to the Office of the Chief Information Office.
- Transferring the EM portion of the Offsite Source Recovery Program to the National Nuclear Security Administration (NNSA).
- Transferring spent fuel storage responsibilities at Idaho National Laboratory, the Foreign Research Reactor Spent Fuel Program, management of Nuclear Regulatory Commission (NRC)-licensed spent fuel, and the National Nuclear Spent Fuel Program to the Office of Civilian Radioactive Waste Management.
- Transferring Formerly Utilized Sites Remedial Action Project records management, responsibility for cost liability and recovery reviews, and Environmental Justice and the Massie Chairs of Excellence Program to the Office of Legacy Management (LM).

We will also be transferring sites, as they are completed, either to the landlord or to LM. The latter will occur if the site has no further DOE mission. EM is working with LM to ensure smooth site closure and transition by:

- Ensuring that site baselines identify functions and elements beyond contract closure to meet all internal requirements;
- Conducting assessments of site readiness for transfer and closure in tandem with LM;

Having joint teams at each site (Rocky Flats has two LM employees) and supported by LM headquarters personnel who were once EM personnel and EM personnel at sites are transferring to LM positions;

Holding quarterly meetings between EM and LM senior management to address key issues and make decisions;

Developing a communication plan defining roles and responsibilities between EM and LM staff.

The administration considers this budget request a critical step on the accelerated risk reduction and cleanup path. Without these resources, we could face higher risk to the environment and the public and lose the momentum we have gained in changing the paradigm. With your support, we have the opportunity to succeed in producing historic results that will last for many years to come.

#### DEMONSTRATING RESULTS

With the October 2003 release of the Report to Congress on the Status of Implementation of the Top-to-Bottom Review, we have demonstrated that the direction we took 2 years ago is showing real results. I wish to take a moment and expound the impacts of the far-reaching accomplishments that are underpinning the developing momentum of the program.

##### *Improved Safety Performance*

We believe in order to accomplish our accelerated risk reduction and cleanup mission, we must continue to do work safely. We are committed to instilling this philosophy in every worker's day-to-day decisions from start to finish of every project. To that end, with top-quality safety standards, we are demonstrating that we can accelerate work and improve safety performance at the same time. For example in August 2001, EM's Total Reportable Cases (TRC) and Lost Workday Cases (LWC) were 1.9 and 0.8 respectively, per 100 workers (TRC and LWC are standard tools used to measure safety performance.) In September 2003, we had reduced our TRC to 1.2 and LWC to 0.5. These rates are significantly better than private industry, which the Occupational Safety and Health Administration (OSHA) reported in 2002, had a TRC of 5.3 and LWC of 1.6. The construction industry alone had rates of 7.1 for TRC and 2.8 for LWC in 2002. We have not, nor will we, stop paying attention to safety. We will continue to "raise the bar" and hold ourselves accountable to the highest standards. Complacency is not acceptable in our advance to the safe conclusion of our cleanup objectives.

##### *Cleanup Results and Risk Reduction*

Prior to the Top-to-Bottom Review, EM had lost focus of the core mission, the mission that the program was established to solve—address the environmental legacy of the Nation's Cold War nuclear weapons research and production. With a program responsible for the management of millions of gallons of liquid radioactive waste and thousands of tons of spent nuclear fuel, the unhurried pace of cleanup and risk reduction was unacceptable. If immediate actions were not taken, the risks associated with the EM program would continue to grow to unpardonable levels.

Last year set a new floor of performance not seen before in the history of the program. Our investment has born amazing results. For example: three spent nuclear fuel basins were deinventoried at Idaho National Laboratory, along with two at the Savannah River Site and one at Hanford. In regard to Hanford, we have removed 70 percent of the spent nuclear fuel from the K-Basins. These basins located less than a quarter of a mile from the Columbia River have the potential to leak and cause costly environmental harm both to the health of the river and the public—this is a significant gain in risk reduction. Another example is at Rocky Flats. This site, once responsible for nuclear triggers, has shipped all plutonium off site and closed the last remaining material access area. These visible, risk reducing results that have demonstrated our ability to accelerate schedule and reduce life cycle cost while showing to our public and surrounding communities the DOE's commitment to improve worker safety, reduce health risks, and eliminate environmental hazards.

So you may have a better comprehension of the magnitude of our cleanup results, I would like to insert for the record a copy of our recent corporate performance measures.

**EM's  
Complex Wide Performance Measures\***

Performance Measure	Unit	FY 2003 Target	FY2003 Actual	FY2004 Target	FY2005 Target	Actual Lifecycle Through FY2003	Lifecycle Scope
Pu packaged for long-term disposition	# Cont.	2,836	3,065	1,323	165	4,549	5,850
eU packaged for disposition	# Cont.	277	201	925	669	2,054	9,101
Pu/U residues packaged for disposition	kg Bulk	934	1,140	254	76	107,659	107,782
DU & U packaged for disposition	MT	1,815	4,551	0	0	7,651	742,149
Liquid Waste eliminated	gallons (1000s)	700	0	1,300	1,900	0	88,000
Liquid Waste Tanks closed	# Tanks	1	0	9	9	2	241
HLW packaged for disposition	# Cont.	130	115	250	250	1,727	18,735
SNF packaged for disposition	MT/THM	857	807	633	1	1,446	2,420
TRU disposed	m3	4,522	6,372	12,952	13,678	14,092	141,314
LL/LLMW disposed	m3	75,030	118,362	89,815	107,067	402,588	1,155,360
MAAs eliminated	# MAA's	1	1	1	1	6	14
Nuclear Facility Completions	# Facs.	2	4	5	14	21	523
Radioactive Facility Completions	# Facs.	7	24	45	67	148	804
Industrial Facility Completions	# Facs.	49	107	110	187	617	2,423
Geographic Sites Eliminated	Sites	2	1	0	2	76	114
Remediation Complete	# Rel. Sites	214	260	200	263	5,186	10,374

\*Each of EM's 16 corporate performance measures is quantitative and focuses on those materials, wastes, environmental media, and facilities that comprise the majority of the risk to environment, public health, and safety. When these measures are completed, the EM program has accomplished its mission. Each measure is tracked in the context of the total life-cycle on 2035 accelerated schedule. The corporate performance measures are under strict configuration control, thereby establishing performance expectations and accountability. Through strict configuration control, EM is able to make crucial corporate decisions that will keep the program on track, monitor and control costs, and manage site closure expectations.

EM's Performance Measures is a compilation of the program's 16 complex-wide performance measures. As you can see, we can deliver significant risk reduction and cleanup and, as I stated earlier, in combination with improved safety performance. Accelerating risk reduction and cleanup, in concert with exceptional safety performance, accomplishes consequential outcomes important to the public, our communities, and for the generations that follow us.

#### *Innovations in Ideas, Processes, and Practices*

Two years ago, the Top-to-Bottom Review described the EM program as lacking a project completion mindset, internal processes were inconsistent with a risk-based cleanup approach, and the hazards at the DOE sites and the liability associated with them did not appear to dictate the need for urgency in the cleanup decisions.

The Top-to-Bottom Review team emphasized that the EM mission cannot be accomplished by continuing business as usual. Innovative actions in all elements of the EM program would need to be taken to transform DOE's processes and operations to reflect the new accelerated risk-based cleanup paradigm.

To foster innovation, we identified ideas and processes from successful projects that had delivered accelerated results and conveyed the information across the EM program. For example, at Rocky Flats, we drew from their experience in project planning and delivery along with technology advancements. Sharing the innovative practices allowed for similar outcomes at other sites. If I may take a moment to share a few ideas and practices:

- (a) Establish a clear end-state vision and risk-based cleanup levels in conjunction with specific future land/site use and in consultation with regulators, stakeholders, and affected and interested governments.
- (b) A "best-in-class" management team is recruited and sustained with the result of team focus and retention of key staff.
- (c) Senior management emphasis is placed on key safety issues of keeping workers working, minimizing the risk of possible high-impact events, quick recovery after accidents, safety "pauses" as appropriate, and improved safety training.
- (d) Projects are managed in an environment that provides significant incentives for real cost savings.
- (e) New and innovative equipment and methods are being used for size reduction (e.g. plasma cutting torch, engineered enclosures, water-jet cutting of components), significantly improving safety and effectiveness.
- (f) Improved decontamination techniques coupled with new radiation instrumentation.

We continue to encourage innovation in our processes and practices to further enhance safety performance, accelerate risk reduction, reduce health impacts, and save resources to be reinvested in furthering the priorities of each of the sites.

#### *Acquisitions Driving Performance*

Tying all these accomplishments together has been our continued drive to improve performance from our new acquisition strategy. These accomplishments serve as indicators of the level of performance we are expecting from our contractors now as well as into the future. When we reviewed our contracts over the past year—as you may remember I said we formed a Contract Management Advisory Board last year—we identified a short list of significant findings that did not prove advantageous to the overall success of the program. We concluded that DOE tends to manage the contractor, not the contract, that project baselines needed improvement along with project management and the associated reporting, incentives for meaningful risk reduction were lacking, more emphasis was needed on cost-efficient performance, and there seemed to be insufficient competition and small business participation.

To address these weaknesses, we have instituted three business models that we believe will vastly improve our acquisition process and opportunities for success. Our reform strategy is to accelerate the reduction of risk from the legacy of the Cold War safely and efficiently and at a cost savings for the taxpayer. One model focuses on improving incumbent contractor's performance, while another aims to increase competition and small business participation. The third concentrates on the establishment of national Indefinite Delivery/Indefinite Quantity (IDIQ) contracts for remediation and decontamination and decommissioning. All three are on the fast track. In fact, in September, as a first step we announced the selection of five 8(a) businesses that will perform work at our small sites across the country. In fiscal 2004, we have six new contracts—two at Paducah, two at Portsmouth, one at the Fast Flux Test Facility at Hanford, and one at the Idaho National Laboratory along with the IDIQ contracts that will be completed. We expect these new contracts will challenge the contractor community, a challenge that is healthy for all involved.

#### *We Have Our Challenges Too*

As we continue to challenge the status quo, we may be confronted with legal actions and court decisions that will direct us to alter or modify our activities from the accelerated cleanup and closure path. We will continue to work diligently with all concerned parties to avoid interruptions in reducing risk and advancing cleanup for the public.

We expect to be challenged on our delivery of Government Funded Services and Items (GFSI). We are accountable on delivery of GFSI and we expect to be held to our commitments.

Also, we have challenged our managers at all levels to stay true to our commitment and employ our corporate performance measures as an accountability and suc-

cess gauge assessing our progress as well as a tool that alerts us when management action or intervention is warranted.

#### THE FISCAL YEAR 2005 BUDGET REQUEST

The fiscal year 2004 budget was the first budget that fully reflected the initiatives undertaken by the administration to transform and revitalize the cleanup of the former weapons complex. The EM program has been refined and fortified with management reforms, which have led to accelerated risk reduction and a decrease in lifecycle costs surpassing previous expectations. The investment we have requested in our fiscal year 2005 budget will contribute to EM's continued success in achieving its mission of accelerated risk reduction and site closure.

The EM fiscal year 2005 budget request represents the peak year of our investment strategy to accelerate cleanup and reduce risk. This budget fully reflects each site's accelerated risk reduction and cleanup strategy. The fiscal year 2005 budget request is pivotal to keep the momentum going and to achieve even greater risk reduction and cost savings than ever before.

The 2005 budget request for EM activities totals \$7.43 billion to accelerate risk reduction and closure. The request includes five appropriations, three of which fund on-the-ground, core mission work, and two of which serve as support. The five appropriations and associated requested funding are:

- Defense Site Acceleration Completion (\$5.97 billion)
- Defense Environmental Services (\$982 million)
- Non-Defense Site Acceleration (\$152 million)
- Non-Defense Environmental Services (\$291 million)
- Uranium Enrichment Decontamination and Decommissioning Fund (\$500 million)

Within the Defense Site Acceleration Completion Appropriation, \$350 million is tied to the Idaho District Court decision on Waste Incidental to Reprocessing. These funds will only be requested upon satisfactory resolution of the recent court decision that affected the Department's plans for some waste streams.

In building the request, the DOE applied the following principles and priorities:

##### *Protect workers, public, and the environment*

The budget request continues to place the highest priority on protecting workers, the public, and the environment. The implementation of EM's cleanup strategies allows for an overall improvement in safety and reduction in risk because cleanup will be completed sooner, reducing the extent to which workers, the public, and the environment have the potential to be exposed. Over the past 2 years, dramatic improvements in safety performance have been demonstrated.

##### *Ensure the appropriate levels of safeguards and security*

Due to heightened security levels throughout the Nation, it is crucial that we maintain vigilance in our domestic security to protect our citizens. The EM program is responsible for many tons of surplus nuclear material. This budget request reflects our increased safeguards and security needs, including the new Design Basis Threat (DBT) requirements. Overall, the budget has decreased from fiscal year 2004 because we have been able to consolidate materials into fewer, more secure locations, and we have reduced the footprint of secure areas. The sites with the largest remaining funding needs are the Savannah River Site and Hanford. The Savannah River Site's funding supports the security of nuclear materials, maintenance of uniformed protective force personnel, information security, and operations security for the protection of classified and sensitive information, cyber security for the protection of classified and unclassified computer security, and personnel security. Hanford's funding supports security for shipment of special nuclear materials and elimination of one material access area within the Plutonium Finishing Plant (PFP), enhancement of cyber security, Hanford site security clearances and other security activities.

##### *Accelerate risk reduction*

Accelerated risk reduction requires a pragmatic approach to cleanup. Risk reduction occurs in various stages, which involve the elimination, prevention, or mitigation of risk. Because safe disposal of many materials will take a number of years to complete, our major focus of risk reduction is stabilization of high-risk materials.

The following categories of materials are considered to pose the highest risk:

- High-curie, long-lived isotope liquid waste
- Special nuclear materials
- Liquid transuranic waste in tanks



- Sodium bearing liquid waste in tanks
- Deteriorating spent nuclear fuel in leaky or poor integrity basins
- Remote-handled transuranic waste and high transuranic content waste
- Transuranic waste stored on the surface
- Decommissioning of highly-contaminated facilities

Although all of these items are to be considered when setting priorities, their relative ranking may vary from site to site. Risk reduction is a major consideration in the development of the site baselines. Examples of planned activities/milestones for fiscal year 2005 that correspond to sitespecific risk categories are:

#### Hanford

- Complete cleanout of K East and K West basins (fuel, sludge, debris, and water).

The K basins are located less than 1,000 feet from the Columbia River. This project involves packaging and removing degrading spent nuclear fuel and radioactive sludge, debris, and water from wet storage in the K Basins to safe, dry interim storage away from the Columbia River. The K Basin facilities are well past their design lives and are a major threat to the environment due to the potential for basin leakage to the surrounding soil and the Columbia River. Their cleanout will prevent potential leakage of 55 million curies of radioactivity to the soil and the river and will decrease the risks posed by the basins to human health and the environment.

- Complete transfer of nuclear material to the Savannah River Site or DOE approved interim storage facility, and complete legacy holdup removal and packaging/disposition of material/waste.

The PFP consists of several buildings that were used for defense production of plutonium nitrates, oxides, and metal from 1950 through 1989. Completion of the transfer of the stabilized materials and legacy holdup material from PFP allows the cleanout and demolition of these facilities to slab on grade. It results in a reduced national security threat by consolidating nuclear materials into fewer locations.

- Ship all above-ground transuranic waste to the Waste Isolation Pilot Plant.

Hanford has several thousand containers of previously generated transuranic waste in above-ground storage buildings. Characterization and shipment of this waste to the Waste Isolation Pilot Project for final disposal will reduce the risks to facility workers as well as reduce the safeguard and security vulnerability associated with this waste. This action represents final disposal of this waste in an environmentally protective repository.

- Complete installation of In Situ Redox Manipulation Barrier in the 100-D Area.

Chromium-contaminated groundwater is reaching the Columbia River in the 100-D Area. The contamination levels are above 20 times the aquatic life water standard, and the area is adjacent to potential salmon spawning locations. To address this, a series of wells will be drilled and a chemical that detoxifies chromium will be deposited into the matrix in which the groundwater travels to the river. As a result, the groundwater reaching the Columbia River will once again meet the aquatic water standards, thereby protecting human health and the salmon population in the river.

- Initiate waste retrieval from 11 single-shelled tanks.

Radioactive liquid waste stored in older single-shelled tanks has the potential of leaking and contaminating soil and groundwater that flows to the Columbia River, presenting a risk to human health and the environment. Waste will be retrieved from the single-shelled tanks and moved to safer double-shelled tanks.

#### Idaho

- Disposition 34 containers of special nuclear material containing uranium, completing 75 percent of shipments offsite; initiate transfer of spent nuclear fuel from CPP-666 wet storage to the Irradiated Fuel Storage Facility; and maintain a running average of 2,000 cubic meters per year of transuranic (TRU) waste shipped out of Idaho.

Idaho sits over a major sole source aquifer, the Snake River Plain Aquifer, which is used to supply water to the people of southeastern Idaho as well as irrigation water for the significant agricultural activities. These actions will reduce the potential risk to human health by preventing the migration of contamination into the aquifer. It also will reduce the national security threat by consolidating materials into fewer locations.

#### Paducah

- Disposition 875 cubic meters of low-level/mixed low-level legacy waste, allowing for a 37 percent completion of work.

The packaging and disposal of low-level waste stored outdoors will reduce the waste inventory and eliminate the potential release into the environment that could result from deterioration of the storage drums. Outside storage of this material in some cases leads to additional surface water and soil contamination. Removal of these materials further reduces the continued exposure to workers performing surveillance and maintenance.

- Disposition 12,400 tons of scrap metal.

Scrap metal is a suspected source of continued surface water and possible soil contamination. This action contributes to the continued source term removal of contaminants leaching into the environment. Reduction in the massive quantities of scrap metal continues to improve the potential safety concern to our workers.

- Continue decontamination and decommissioning of C-410 complex.

The C-410 Complex is a large chemical complex in a shutdown condition. Removal of contaminated materials and equipment reduces potential risk to onsite workers and represents a key step in stabilizing the facility such that contaminants are prevented from release to the environment.

#### Portsmouth

- Disposition 9,089 cubic meters of legacy waste.

The continued shipment and disposal of legacy waste will proportionally reduce the risk such wastes present to the health and safety of workers and reduce the ongoing potential for release to the environment.

- Process approximately 42 million gallons of water through Groundwater Pump and Treat facilities.

Plume control keeps contaminants from reaching surface streams and off-site drinking water supplies. Trichloroethylene (TCE), which was an industrial solvent, is the main groundwater contaminant at the site.

#### Pantex Plant

- Complete Zone 11 soil vapor extraction for removal of contamination from the vadose zone and protection of the groundwater.

Removing the soil gas contamination will avoid potential migration to a fresh water supply, thereby reducing the risk posed to human health and the environment.

- Complete Burning Grounds landfills interim corrective measure (engineered covers) to secure wastes and protect groundwater.

The covers will mitigate the vertical transport of contaminants, which will reduce the potential impact to the fresh water supply.

- Complete demolition of Zone 10 Ruins.

The Zone 10 ruins have suspected high explosives contaminants in the numerous disintegrating structures. Removal of high explosive will avoid further contamination of soils, and demolition of the ruins will reduce safety risks to persons in the area.

- Complete decontamination and decommissioning of Building 12-24 Complex.

There is evidence that this complex contributed to the high explosives plume that migrated to the southeast and off-site. Decontamination of the 12-24 Complex will mitigate the migration of this plume.

#### Oak Ridge

- Complete East Chestnut Ridge Waste Pile Closure.

Risks associated with industrial safety will be reduced by eliminating the need to excavate and transport the material to treatment subsequent to disposal.

- Complete disposition of legacy low-level waste.

Approximately 40 percent of the low-level waste was stored outdoors in deteriorating containers. Disposition of this waste will decrease the risks associated with their potential environmental release.

- Complete processing and stabilization of transuranic waste tanks.

This action will eliminate the potential for the waste's migration to groundwater.

- Initiate contact-handled transuranic waste processing at the Waste Processing Facility.

This waste is stored in above grade-storage trenches and in earthen trenches. Processing the waste prevents the risk of release to the environment and a continued cost of waste storage and monitoring.

- Complete treatment of liquid low-level waste supernate at the Waste Processing Facility and disposal of the dried supernate product at the Nevada Test Site.

Treatment and disposal of the supernate decreases the risks posed by these highly radioactive fission products.

- Complete Atomic City Auto Parts.

This action will reduce the risks posed to workers and the surrounding community from uranium and polychlorinated biphenyls contamination in the soil.

#### Savannah River Site

- Begin processing neptunium solutions.

The site has approximately 6,000 liters of Neptunium-237 nitrate solution in H-Canyon. Through processing, the neptunium solutions are converted into a more stable form, and the risks they pose to human health and the environment are reduced.

- Complete bulk waste removal in Tank 5.

Tank 5 is one of 49 underground tanks currently used to store radioactive liquid waste at the Savannah River Site. This waste represents one of the highest risk to human health and the environment. Current plans call for the removal of the waste from Tank 5 for treatment, stabilization and disposal. A new approach, the Waste-On-Wheels (WOW) system, will be utilized to remove the waste from Tank 5 and other tanks. The WOW is a portable method of performing bulk sludge waste removal from the tanks. The WOW system will reduce the project schedule for waste removal and therefore reduce the risk to human health and the environment imposed by the highly radioactive waste.

- Complete decommissioning of seven industrial and radioactive facilities.

Decommissioning excess radioactive facilities will reduce the footprint of the site, and therefore collectively reduces risk to the worker by eliminating the need to enter the facilities to perform required, routine surveillance and maintenance activities. Risk of worker exposures while performing these activities is eliminated. Decommissioning excess radioactive facilities also eliminates the potential environmental and human health risk of accidental releases from these facilities. Decommissioning industrial facilities eliminates the risk to workers associated with having to maintain old facilities which are no longer needed but which require regular inspections or maintenance activities, such as roof work.

#### Lawrence Livermore National Laboratory-Livermore Site

- Construct, install, and operate a portable treatment unit at Treatment Facility D Hotspot, Treatment Facility E Hotspot, the northern portion of the East Traffic Circle Source Area, and the Treatment Facility 406 Hotspot area.

These actions will further prevent the release of TCE, thereby reducing risks to the public from exposure to contaminated groundwater.

- Remove contaminated surface soil and contaminated sandpile at Building 850.

These actions will mitigate risk to onsite workers, and will prevent further impacts to groundwater above health-based standards.

- Construct, install, and operate groundwater extraction and treatment facility.

Remediation of the high-explosive process area is a high priority due to the offsite migration of contaminant plumes, current impacts to onsite water-supply wells, and the inhalation risk to onsite workers. These actions will impede the migration of plumes, protecting offsite water-supply wells from contamination.

#### *Maintain closure schedules*

Three major sites, Rocky Flats, Fernald, and Mound, have accelerated closure schedules. In addition, two smaller sites, Ashtabula and Battelle-Columbus are scheduled to close in 2006. Funding in the fiscal year 2005 budget will allow these sites to remain on track toward project completion and site closure.

At Rocky Flats, fiscal year 2005 funding provides for:

- Completing site deinventory of legacy low-level/mixed low-level and transuranic waste to off-site disposal; completing remediation of 30 release sites.

During fiscal year 2005, Rocky Flats will be approaching completion of their commitment to closure and conversion of the Rocky Flats site for future beneficial use. The buildings where plutonium and other hazardous materials were used in support of the nuclear weapons deterrent will be under various stages of demolition, the final quantities of radioactive wastes will be removed from the site, and the grounds will be receiving the necessary remediation action. These actions, when complete, will allow the DOE to release the site to the U.S. Fish and Wildlife Service to become the Rocky Flats Wildlife Refuge with little or no further risk to human health or the environment.

At Fernald, fiscal year 2005 funding provides for:

- Completing decontamination and dismantlement of the Waste Pits Complex and the East Warehouse Complex, and completion of waste pits remedial action operations.

Completing the Waste Pit Remediation Project will result in over one million tons of waste pit material having been transported off-site via rail for safe, compliant disposal and the decontamination and decommissioning of the treatment facility and other waste pit infrastructures. Completing these activities represents a substantial risk reduction to human health and the environment for the entire Fernald Closure Project site. This remediation activity is being conducted in an extremely safe manner considering the industrial hazards involved.

- Completing Silos 1 and 2 operations, including removal of waste material, and beginning disposition of the waste for off-site disposal.

Silos 1 and 2 Extraction and Treatment Operations represent the greatest risk to human health and the environment at the Fernald Closure Project. Silos 1 and 2 contain the highest levels of radiological activity residing in any waste stream at the site. The Silos 1 and 2 project constitute the Site Closure Critical Path. Their successful completion is a prerequisite for a timely and safe closure.

- Completing construction of the On-Site Disposal Facility (OSDF) Cell 3 and Cell 4 caps.

Capping Cells of the OSDF will ensure the reduction in risk to human health and the environment during post closure. Overall, the OSDF will be composed of 8 cells, containing 2.5 million cubic yards of waste soil and debris. The OSDF has been designed and engineered to possess a 5-foot thick liner and a 9-foot thick cap. The OSDF has a design life of 1,000 years.

At Mound, fiscal year 2005 funding provides for:

- Completing remediation of 37 potential release sites (65 percent of remaining), including the restoration of potential release site (PRS) 66.

Completing the PRSs in fiscal year 2005 decreases risk by preventing any further radioactive contamination from migrating into clean soil areas and ground water, by reducing potential exposure to site workers and other personnel located on site, and by precluding any potential environmental impacts to off site areas.

At Ashtabula, fiscal year 2005 funding provides for:

- Completing remediation of the Waste Management Unit.

Remediating the Waste Management Unit significantly reduces the remaining risks of organic and inorganic chemical exposure to both soil and groundwater at the RMI company site.

At Battelle-Columbus, fiscal year 2005 funding provides for:

- Completing decontamination/stabilization of the fuel storage pool and transfer canal and the high-bay area surfaces in JN-1.

Removing this source term will reduce the risk of contamination, both internal and external, to the workers during building de-construction. Removal of the source term would also reduce risk to off-site areas and members of the general public.

#### *Integrate technology development and deployment*

An integrated technology development and deployment program is an essential element for successful completion of the EM cleanup effort and for fulfilling post-closure requirements. The EM Technology Development and Deployment (TDD) pro-

gram provides technical solutions and alternative technologies to assist with accelerated cleanup of the DOE complex.

EM TDD investments are focused on high-payoff site closure and remediation problems through a two pronged approach: Closure Projects and Alternative Projects.

#### *Closure Projects*

Principal near term closure sites (such as Rocky Flats, Fernald, and Mound) will be provided with technical support and quick response, highly focused technology development and deployment projects. The goal is to ensure that accelerated site closure schedules are achieved.

- At the Rocky Flats closure site, technical assistance teams will assess critical technical issues and provide technology alternatives including the treatment and disposition of orphaned waste streams and improved methods of beryllium decontamination.
- At Mound, innovative technologies will be developed to determine and enable treatment of radioactive contaminated soil beneath buildings.
- At Fernald, the vacuum thermal desorption demonstration will be completed to provide a technical solution for an orphaned waste stream, and technical support to the Silos # 1, 2, and 3 waste removal and disposition will be successfully completed.
- At Oak Ridge, delineation of contamination and definition of treatment feasibility for subsurface contamination will be completed.

#### *Alternative Projects*

Alternative approaches and step improvements to current high-risk/high cost baseline remediation projects are our second focus. The goal is to enable cleanup to be accomplished safely, at less cost, and on an accelerated schedule. EM is focusing funds for fiscal year 2005 on:

- Alternatives For Tank Waste Pretreatment and Immobilization (Hanford Site, Office of River Protection);
- Alternatives for Carbon Tetrachloride Source Term Location (Hanford Site, Richland);
- Alternatives for Disposition of High-Level Salt Waste (Savannah River Site);
- Alternatives for Remediation of Chlorinated Ethenes using Monitored Natural Attenuation (Savannah River Site);
- Alternatives for Deposit Characterization and Removal at Gaseous Diffusion Plants (Portsmouth);
- Alternatives for In situ Transuranic Waste Delineation and Removal (Hanford Site, Richland)
- Alternatives for Non-Destructive Assay and Examination of Large Transuranic Waste Containers (Savannah River Site/Carlsbad)

#### CONCLUSION

This year has seen dramatic results demonstrating our steadfast belief that continuing on the accelerated path will provide the direction and framework to resolve the problems that lie before us. As with all new enterprises that seek to challenge the status quo, impediments will be encountered. We must not lose our momentum that has so earnestly been established through collaboration and a singular focus of delivering meaningful results for the American public.

We are committed to employ our resources to show meaningful results and we are taking a very staunch view of results. The job is not done until it is done. We cannot be complacent, we must continue to do better. It is not done when we develop a plan—it is not done when we agree to a milestone—it is not done when we ask for funding—it is not done when we sign a contract—it is not done when we get money. It is not done until it is done and there is positive and measurable risk reduction for the investment.

The only measure of success will be positive, measurable accomplishments of public safety and environmental protection. The longer we wait, the greater the potential risk. We must not lessen our commitment to the American people to do the "right thing." I ask for your support to continue this important work. We must avoid losing the opportunity to rid this legacy from our children's inheritance. We are safer today than we were last year and we must stay the course so we are safer next year than today. We have accelerated cleanup by at least 35 years reducing lifecycle cost over \$50 billion. The potential is there to lose what we have gained should we fail to stay true to our commitments.

I look forward to working with Congress and others to achieve this worthy goal. I will be happy to answer questions.

Senator ALLARD. Thank you for your testimony.  
Now we would like to hear from you, Mr. Owen.

**STATEMENT OF MICHAEL W. OWEN, DIRECTOR, OFFICE OF  
LEGACY MANAGEMENT, DEPARTMENT OF ENERGY**

Mr. OWEN. Thank you, Mr. Chairman. Good afternoon.

My name is Michael Owen and I am the Director of LM at the DOE. I would like to request permission to submit a written statement for the record and I have a brief oral statement.

Senator ALLARD. Both of your full statements will be put in the record.

Mr. OWEN. Thank you.

At this time last year, I testified before this committee on the Department's proposal to establish LM. This committee expressed support for this proposal in the defense authorization bill for fiscal year 2004 and included language recommending merging the office, the old Office of Worker and Community Transition (WT) with LM. The Department has merged the two offices, and I can report to you that the establishment of this new office will enable additional progress in our efforts to address the consequences of our former nuclear weapons production program.

LM's fiscal year 2005 budget request is just over \$66 million. The environmental surveillance and maintenance efforts require approximately \$28 million of that. The pension and benefit continuity program for former contractor personnel requires approximately \$22 million, of which \$1.5 million will be used to prepare for the administration of pension and retiree benefits for the planned 2006 closure sites. The remaining \$16 million includes \$2.5 million for the traditional worker transition activities and roughly \$13.5 million for program direction.

Currently, LM is responsible for long-term surveillance and maintenance activities at more than 50 sites where active environmental remediation has been completed. As the EM office continues to accelerate cleanup, sites will be ready for closure earlier than previously predicted. However, the acceleration will not eliminate the post-closure responsibilities and environmental liabilities. LM has been established and organized to support the EM office's accelerated closures and ensure that all departmental post-closure responsibilities and liabilities are effectively and efficiently addressed.

LM and EM will work seamlessly to ensure a smooth handoff of responsibilities at these sites. In the near term, these sites include the Department's Rocky Flats facility outside of Denver and the Mound and Fernald facilities in southwestern Ohio. All three sites are scheduled to be remediated, closed, and transitioned to LM for long-term surveillance and maintenance by fiscal year 2007.

Over the next 5 years, the number of sites managed by LM is projected to grow to approximately 105. Once sites have been accepted and transitioned to LM, the office performs long-term surveillance and maintenance to ensure the environmental remedies remain protective of human health and the environment. Working with the EM closure sites, the regulators and the communities, LM

also develops long-term surveillance and maintenance plans, provides post-remediation expertise and assistance to sites which are transitioned to LM.

LM is also charged with the transfer or reuse of sites that no longer support an ongoing departmental mission and possible disposal of properties in long-term surveillance and maintenance. The function of the community transition program from the old WT office falls under this office and includes assisting DOE communities in acquiring excess departmental personal and real property for economic redevelopment purposes.

The completion of missions at certain DOE sites also has an impact on the former contractor personnel at those respective sites. When the site contractor's cleanup functions are complete, pensions and other long-term benefits due to former contractor personnel still need to be administered. There will no longer be, for the first time ever, a contractor on the site to administer these benefits.

Therefore, LM implements departmental policy concerning closure site contractor employees for continuity of their post-closure and retiree benefits and will coordinate and procurement concerning contractor benefits after closure.

Additionally, a significant increase in pension and long-term benefit administration will occur in the near future. In the past, administration of pensions and benefits at closed sites was transferred to other DOE contracts. The Department's objective is to avoid benefit interruption or inconveniences to plan participants, to maintain and improve quality of service, and to develop a flexible approach to accommodate future closure sites. LM is currently establishing a program to oversee the continuation of benefit payments that the Department through its contractors is committed to provide for former contractor employees at closed sites.

Integral to the cleanup and closure of sites is the preservation and protection of records and information. LM will develop a plan for accepting and maintaining all records transferred to the office. These records include, but are not limited to, historical site records, long-term surveillance and maintenance records, former contractor personnel records, and various classified records, as well as the record of the actual environmental remediation at that site.

For example, Rocky Flats, Mound, and Fernald will have by closure approximately 170,000 cubic feet of records that must be managed by LM. As the sites continue to transition to LM, we expect that volume of records, of hard copy records, to grow additionally.

In closing, the Secretary is dedicated to ensuring the Department's commitment to the environment, our stakeholders, our workers past and present, and the nearby communities. We recognize that the DOE has responsibilities to the former contractor workers and communities following the completed remediation and closure of sites.

Mr. Chairman, Senator Graham, that concludes my statement. I appreciate the opportunity to testify before you today and will be happy to answer any questions you may have.

[The prepared statement of Mr. Owen follows:]

## PREPARED STATEMENT BY MICHAEL W. OWEN

## OPENING REMARKS

Good morning Mr. Chairman, and distinguished members of the subcommittee. My name is Michael Owen, and I am the Director of the Office of Legacy Management (LM) at the Department of Energy (DOE).

This time last year, I testified before this committee on the Department's proposal to establish LM. This committee expressed support for this proposal in the Defense Authorization Bill for Fiscal Year 2004 and included language recommending merging the Office of Worker and Community Transition (WT) with LM. The Department has merged the two offices, and I can report to you that the establishment of this office will enable additional progress in our efforts to address the consequences of our former nuclear weapons production program. This is an important time for the Department, and we are now positioned to continue focusing DOE programs and personnel on achieving the diverse missions of the Department, including assisting the Environmental Management (EM) program with their focus on risk reduction and site closure. LM is one element that will enable the Department to continue this progress.

## LEGACY MANAGEMENT MISSION AND VISION

I want to take this opportunity to describe the mission and vision for LM.

LM's mission is to manage the effects of certain changes in the Department's mission requirements and ensure the future protection of human health and the environment. Our mission is to ensure departmental legacy responsibilities are managed in a manner that best serves Department workers, communities, and the environment. This vision includes several elements:

- Human health and the environment are protected at closed sites, through effective environmental surveillance and maintenance.
- Key records and critical information are preserved and made publicly accessible.
- Public trust is sustained through cooperative partnerships with stakeholders and State, tribal, and local governments.
- Effective oversight and management of health and pension benefits of the Department's former contract work force, who have been instrumental to the successful conduct of our missions;
- Federal land and other assets are returned to the most beneficial use consistent with the Department's mission requirements; and
- Impacts of departmental work force restructuring have been mitigated, working in partnerships with departmental workers, labor unions, and communities to adapt to changes in the Department's missions;

## LEGACY MANAGEMENT FISCAL YEAR 2005 FUNDING REQUEST

LM's fiscal year 2005 budget request is just over \$66 million. This funding request will enable us to conduct our mission. The environmental surveillance and maintenance efforts require approximately \$28 million. The pension and benefit continuity program for former contractor personnel requires approximately \$22 million. This funding provides benefits at three sites: about \$14 million for former contractor personnel associated with the Paducah, Kentucky and Portsmouth, Ohio sites; and, approximately \$6.5 million for the former contractor employees at the Pinellas Plant in Florida. For the planned 2006 closure sites, \$1.5 million will be used to prepare for the administration of pension and retiree benefits. The remaining \$16 million includes \$2.5 million for worker transition activities, and roughly \$13.5 million for program direction.

This request does not include funding to sustain the community transition program. Over the past 10 years, the DOE has reduced its contractor work force by 50,000 employees. At the same time, the affected communities have received over \$280 million in financial assistance. This assistance has resulted in the creation or retention of more than 32,000 jobs. At this point, the Department is projecting a decreased need for additional community transition assistance. This is largely attributed to stabilization of the Department's missions and the effectiveness of the community reuse organizations across the country in assisting displaced former DOE contractor employees.

## THE OFFICE OF LEGACY MANAGEMENT ORGANIZATION

Over the past year, the DOE has worked hard to create an office that addresses the concerns of our work force, our communities, and the environment. Since LM



is a new organization I will take a brief moment to describe the offices within LM. Also included, on the last page of my statement, is a copy of the LM organization chart.

The Office of the Director oversees all functions of the office and reports to the Under Secretary, Energy, Science and the Environment. The Office of Strategic Materials is the former Asset Management Program under the old WT, and manages the Department's strategic material stockpile. The Office of Stakeholder Relations is our liaison with State, local, and tribal governments, and coordinates our external communication with many stakeholder groups. The Office of Budget manages the office's finances, budget request and coordination. The Office of Business and Resource Management provides human resources support for LM, assists in long-term surveillance and maintenance, as well as oversees and manages the large and complex issue of records management, which I will touch on later.

The Office of Legacy Benefits, Work Force Restructuring, and Labor-Management Relations oversees all work force restructuring efforts and labor relations across the Department's complex, as well as the new function of legacy benefits, or post-closure benefits which I will also describe later in my testimony. The Office of Property Management and Community Assistance manages disposition, leasing, and reuse of the office's real property and works with other agencies and external organizations to transfer real property from the DOE. The Office of Policy and Site Transition develops policy and guidance in close coordination with EM for accepting EM sites into LM. Finally, the Office of Land and Site Management monitors and maintains environmental remedies such as long-term surveillance and maintenance at LM sites.

We have built an integrated team of LM personnel to accomplish our mission. Federal staff are located strategically in key locations to minimize travel costs and maximize customer service. Our staff locations include Washington, DC; Grand Junction, Colorado; Morgantown, West Virginia; Pinellas, Florida; and Pittsburgh, Pennsylvania.

#### ENSURING THE EFFECTIVE MANAGEMENT OF POST CLOSURE ENVIRONMENTAL RESPONSIBILITIES

The Department's environmental legacy responsibilities stem primarily from the activities of the Department and predecessor agencies, particularly during World War II and the Cold War. Currently, LM is responsible for long-term surveillance and maintenance activities at more than 50 sites where active environmental remediation has been completed. The majority of these sites are either Uranium Mill Tailings Radiation Control Act (UMTRCA) sites or sites associated with the Formerly Utilized Sites Remedial Action Program (FUSRAP). In addition we have responsibility for three Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites: Weldon Spring Site in St. Charles County, Missouri; the Monticello site in Utah, and the Young-Rainey Science, Technology, and Research (STAR) Center in Largo, Florida, at the former Pinellas Plant site.

As EM continues to accelerate, cleanup sites will be ready for closure earlier than previously predicted. However, that acceleration will not eliminate the post-closure responsibilities and environmental liabilities. LM has been established and organized to support EM's accelerated closures and ensure that all departmental post-closure responsibilities and liabilities are effectively and efficiently addressed. LM and EM will work seamlessly to ensure a smooth handoff of responsibilities at these sites. In the near term these sites include the Department's Rocky Flats facility in Colorado and the Mound and Fernald facilities in Ohio. All three sites are scheduled to be remediated, closed, and transitioned to LM for long-term surveillance and maintenance by fiscal year 2007. Over the next 5 years, the number of sites managed by LM is projected to grow to approximately 105. The majority of the new sites transferred into LM will be those associated with UMTRCA Title II and FUSRAP sites currently being remediated by the U.S. Army Corps of Engineers.

Once sites have been accepted and transitioned to LM, the office performs long-term surveillance and maintenance to ensure the environmental remedies remain protective of human health and the environment. Working with EM closure sites, the regulators, and the communities, LM also develops long-term surveillance and maintenance plans, provides post-remediation expertise, and assistance to sites with their transition to LM. Environmental surveillance and maintenance requirements differ according to the nature of the individual site but generally include: groundwater monitoring and treatment; maintaining of adequate institutional controls; record keeping; radiological surveys; repairs to waste disposal cell caps and covers; and erosion control and periodic inspection and the preparation and submission of post-closure regulatory documentation.

#### MANAGE LEGACY LAND AND ASSETS, EMPHASIZING SAFETY AND REUSE, AND DISPOSITION

LM is also charged with the transfer or reuse of sites that no longer support an ongoing departmental mission and possible disposal of properties in long-term surveillance and maintenance. As such, LM works with other agencies and organizations to transfer real property from the DOE, and supports other departmental elements in reviewing transition plans and closure plans to facilitate the transfer of real and personal property assets to other agencies, private organizations, or private interests. The function of the community transition program from WT falls under this office, and includes assisting DOE communities in acquiring excess departmental personal or real property for economic development purposes.

At this time the Department's priority focus is to transfer or lease portions of Federal properties associated with the following sites: the Weldon Spring site in Missouri; the New Brunswick Laboratory and the Wayne site in New Jersey; the Salmon site in Mississippi; the Mound site in Ohio; the Eastern Tennessee Technology Park in Tennessee; the Rocky Flats Environmental Technology site in Colorado; and the Hanford site in Washington.

#### ENSURING THE EFFECTIVE MANAGEMENT OF POST-CLOSURE CONTRACTOR RESPONSIBILITIES

The completion of missions at certain DOE sites also has an impact on the former contractor personnel at the respective sites. When the site contractor's cleanup functions are complete, pensions and other long-term benefits due to former contractor personnel still need to be administered; however, there will no longer be a contractor on site to administer these benefits. Therefore, LM implements departmental policy concerning closure site contractor employees for continuity of their post-closure and retiree benefits, and will coordinate on procurement concerning contractor benefits after closure. Additionally, a significant increase in pension and long-term benefit administration will occur in the near future. In the past, the administration of pensions and benefits at closed sites was transferred to other DOE contracts. For example, the administration of pensions and benefits at Pinellas was transferred to an Albuquerque contractor. With the planned closure of Rocky Flats, this practice would no longer be a viable option given the magnitude of the Rocky Flats pension and benefit plans. Rocky Flats is scheduled to close by the end of fiscal year 2006. The DOE's objective is to avoid benefit interruption or inconvenience to plan participants, to maintain or improve quality of service, and to develop a flexible approach to accommodate future closure sites. LM is currently establishing a program to oversee the continuation of benefit payments that the Department through its contractors, is committed to provide for former contractor employees at closed sites.

#### PRESERVE AND PROTECT LEGACY RECORDS AND INFORMATION

Integral to the cleanup and closure of sites is the preservation and protection of records and information. LM will develop a plan for accepting and maintaining all records transferred to the office. These records include, but are not limited to, historical site records, long-term surveillance and maintenance records, former contractor personnel records, and classified records. The office will also manage records including the collection, storage, maintenance, and retrieval of electronic and physical records as well as database and systems needed to support LM activities. For example, the three closure sites, Rocky Flats, Mound, and Fernald will have, by closure, approximately 167,000 cubic feet of records that must be managed by LM. As sites continue to transition to LM, we expect that volume of hard copy records may exceed 225,000 cubic feet. These volumes do not include records for which special handling will be needed. These include X-rays, photographs and negatives, video and audio-tapes, and architectural drawings.

#### CONCLUSION

In closing, the Secretary is dedicated to ensuring the DOE's commitment to the environment, our stakeholders, and our workers—past and present. We recognize that the Department has responsibilities to the former contractor workers and communities following the completed remediation and closure of sites. The continued involvement of stakeholders including State, tribal, and local governments, is critical to meeting these responsibilities. To this end, we will vigorously promote an effective mechanism that provides for, and encourages, active public participation.

Mr. Chairman, and members of the committee, that concludes my statement. I appreciate the opportunity to testify before you today, and I will be happy to answer any questions you may have.

Senator ALLARD. Thank you both for your testimony.

I want to give Senator Graham an opportunity to make any statement if he would like. Before you proceed, Senator Graham, I just kind of want to lay out to you what my plans are. I have a lengthy question-response dialogue that I want to carry on here with Secretary Roberson. I think it will be of interest to you because it deals with the sites at Hanford and Idaho as well as Savannah River, and I know that is very dear to your heart and very important to you.

Then if you want to make a statement and ask some questions, if your schedule demands that you cannot be here for that, then I will let you go ahead. If not, maybe I will go ahead and get these questions out. You can make your opening statement, I will get this questioning out of the way, and then call on you for additional questions.

Senator GRAHAM. Okay, Mr. Chairman. I have to leave in about 10 minutes.

Senator ALLARD. Senator Graham, make your opening statement.

Senator GRAHAM. It will take me a minute.

Senator ALLARD. Okay, very good.

Senator GRAHAM. One, thank you for having the hearing. Two, thank you both for coming.

The opening statement basically is that the administration has been very creative, I think, in trying to come up with an accelerated cleanup plan. I know the chairman here is sort of a leading edge kind of guy to make sure that we are spending taxpayer dollars wisely. I know you are negotiating with South Carolina and other States to see if we cannot have a rational way of classifying high-level wastes and having a rational way of disposing of it.

There are literally hundreds of billions of dollars at stake here, and I am not advocating or asking any State or any site to accept a burden they cannot bear. I am not asking any community to leave legacy materials behind that are going to be hazardous to the health of the community in any fashion. But I am asking everyone, including myself, who represents the Savannah River Site, to be open-minded and try to break through this mentality that there is no new way to do something with an old problem.

So I will stand squarely behind the Department's efforts to get every State with a waste legacy from the Cold War to be more open-minded and more creative and more responsive to using good science to save money and protect the environment.

Mr. Chairman, I know you have gone to all the sites and we particularly appreciate your leadership of trying to make the committee more responsive to the efforts of the Department to do things in a more professional, common sense way. I want to compliment you.

With that, I will listen to your questions.

Senator ALLARD. Well, thank you very much for your participation. It is valuable to this committee.

I am going to be referring in my questioning to "WIR," which stands for "Waste Incidental Reprocessing." I think it would behoove the committee to hear, Secretary Roberson, you summarize what the WIR issue is.

Ms. ROBERSON. Thank you, Chairman Allard. Thank you, Senator, as well.

Cleanup of tank waste at Hanford, Idaho, and Savannah River represents the greatest risk reduction effort in the Department's entire cleanup program.

Senator ALLARD. This falls under WIR, is that correct?

Ms. ROBERSON. Absolutely.

Senator ALLARD. Okay.

Ms. ROBERSON. I will explain what portion of the program that specifically applies to.

Senator ALLARD. Very good.

Ms. ROBERSON. We had plans at these three sites to clean up tank wastes, plans agreed to with our host States and that the Nuclear Regulatory Commission (NRC) had also carefully reviewed. At each site our plans acknowledged we would remove as much tank waste as we could. We would separate the tank waste into two fractions: first, a high-level, a high activity fraction containing over 95 percent of the radioactivity, which we would classify as high-level waste and treat and dispose of in the repository for spent fuel and high-level waste called for by the Nuclear Waste Policy Act; and a low activity fraction which we would classify as low-level waste incidental to reprocessing, depending on its characteristics, treat and dispose of in an appropriate disposal facility for such material.

We would then determine whether we could demonstrate that disposing of a small amount of residues remaining in the tanks, generally around 1 percent of the original volume, by immobilizing it in place to ensure that it would be comparable to the public health and safety requirements for disposal of low-level waste in a near-surface disposal facility. If it would, our plans were to classify the residues as low-level waste incidental to reprocessing, to immobilize them in the tanks, and close the tanks with these residues in place.

A key element of these plans is the classification of the tank waste. The problem we have encountered is that in July 2003 an Idaho district court struck down the WIR portion of DOE Order 435.1, the DOE order addressing how DOE and its contractors classify waste under the Atomic Energy Act. As a result, we now face uncertainty in implementing the very plans our host States had agreed made technical sense.

The classification of this waste is key to determining how to dispose of it. Therefore, if we are unable to resolve this issue regarding WIR, we face leaving these tank wastes in place far longer than we and our host States had anticipated and by such delay would likely create more serious health and safety risks to workers and members of the public by leaving the wastes in the tanks longer and risking leaks to groundwater.

Senator ALLARD. Madam Secretary, why do you have to leave any of the waste residues behind?

Ms. ROBERSON. Mr. Chairman, let me briefly describe the size of these tanks and the nature of the waste removal in question. Each tank can hold as much as 1.3 million gallons of liquid waste. At Hanford, for example, the tanks are 75 feet in diameter and the

tanks are of differing shapes. Some are concave, which means they do not have a flat bottom.

Senator ALLARD. I guess that is about the size of this room, would be a good estimate?

Ms. ROBERSON. Yes, standing on its head.

Senator ALLARD. Standing on its side, yes, that is right.

Ms. ROBERSON. That is right.

Under the triparty agreement at Hanford between DOE, Washington State, and the Environmental Protection Agency (EPA), which governs the cleanup at that site, the goal is that we retrieve 99 percent of the tank waste. If all of the remaining waste were on the bottom of the tank, it would be just under one inch thick. Because of radiological concerns with exposure for workers, tank waste removal must be done remotely. In addition, these tanks usually sit below ten feet of soil cover. Our retrieval equipment must fit into openings two inches to two feet wide, and tank structures are not designed to support heavy loads from which equipment must be deployed to do the tank cleaning.

It is not a simple task to scrape the last remaining tank residues from a tank. Further, much of the waste residues are expected to have a stiff consistency. Most removal techniques require directing pressurized water streams at the remaining wastes to immobilize it and to move it to a location which can be pumped. We have spent over 10 years working on technologies to improve removal opportunities for the waste from these tanks.

Finally, many of the tanks are over 40 years old and have a number of known leak sites, requiring us to exercise great care to preclude water leaking from the tank.

As I said, DOE spent tens of millions of dollars exploring how to get as much residual waste as possible out of the tanks.

Senator ALLARD. What is the material you plan to leave in the tanks?

Ms. ROBERSON. We think the residues when stabilized are appropriately considered low-level waste, suitable for shallow land burial. Analysis will be performed to ensure that they meet performance objectives established by DOE and the NRC for low-level waste performance objectives. In fact, that is what the order that was struck down by the judge's ruling required.

Senator ALLARD. Now, should not the waste's characteristics and the risks it poses be what matters in terms of safe disposal, rather than the process that created the waste?

Ms. ROBERSON. Yes, Mr. Chairman, we believe so, and we believe that that is the philosophy behind the cleanup plans in place for those sites.

Senator ALLARD. How much more than your current estimates might this cost the American taxpayers?

Ms. ROBERSON. Our preliminary assessment was that it would cost as much as \$138 billion more over the life cycle of the Department's cleanup program and extend that life cycle by decades to have to process all of our tank waste as high-level waste for disposal in a geologic repository, including exhuming the tanks themselves, cutting them up, and packaging them for disposal.

Senator ALLARD. So what is the risk if you have to do that?

Ms. ROBERSON. Clearly, the risk to workers and, frankly, to the environment is much larger if we have to exhume tanks. Given that we cannot proceed with our cleanup plans that were based on our waste classification order, we risk leaving waste in tanks much longer than we had planned right now. We also add to environmental risk by the need to dispose of the large amounts of metals resulting from the almost 250 large tanks and the associated equipment.

Our analysis thus far indicates that we would increase worker exposure tenfold, increase costs tenfold, and achieve no meaningful improvement in environmental protection.

Senator ALLARD. So I do not see a rational benefit to the American taxpayer from the DOE having to implement the Idaho district court decision.

Ms. ROBERSON. Frankly, Senator, we do not see it either, which is why we are pursuing this. Rather than accelerating cleanup of tank waste in agreement with our host States, we face stopping much of that work.

Senator ALLARD. What is your plan for resolving this WIR issue?

Ms. ROBERSON. Accelerated cleanup of tank waste is a top priority for the entire DOE and the States that host our facilities. As pointed out in the General Accounting Office (GAO) report completed last year, the WIR issue poses a significant vulnerability for the Department. Consistent with both the GAO recommendations to seek legislative clarification regarding DOE's authority to classify tank waste, and with the report by the House Oversight and Investigations Subcommittee last year, we proposed draft legislation to Congress that would clarify our authority for managing such wastes.

We have since held discussions with affected States over the impacts the Idaho district court decision had on our activities at Hanford, Idaho, and Savannah River in order to seek to address issues they have raised about our proposed legislative approach. In addition, we have just filed our opening brief in our appeal of the Idaho court decision to continue our litigation efforts to resolve the WIR issue. Without timely resolution of this issue, not only could we be unable to implement our cleanup plans, but DOE could be forced to realign its resources across the complex in a manner that would significantly distort the Department's cleanup and other priorities.

Senator ALLARD. What about the \$350 million and what does it take to get that money released?

Ms. ROBERSON. The Department's fiscal year 2005 budget request includes \$350 million in a high-level waste proposal that reflects the need to satisfactorily resolve this issue to support cleanup. These funds will be requested only to the extent that legal uncertainties concerning disposition of these wastes are resolved. Until we can resolve the legal uncertainties related to WIR, it does not make sense for us to proceed with projects that prepare tank wastes for disposition as other than high-level wastes destined for a deep geologic repository.

Senator ALLARD. I want to thank you for your responses, and thank you, Senator Graham. Do you have any questions now that you would like to ask?

Senator GRAHAM. Thank you, Mr. Chairman. I think that was a very comprehensive overview.

Senator ALLARD. Before I have you go ahead, there is a closing comment I need to make here that I overlooked. I would like to take a moment to comment on the WIR issue. The more I learn about this issue, the more it reminds me of the type of arguments that existed at Rocky Flats 7 or 8 years ago. Placing workers, communities, and the environment at high risk simply to meet an arbitrary cleanup requirement which does little or nothing to lower the safety or health risks for the site is not a good policy. Doing so at great expense makes even less sense.

It is my understanding that the DOE, working with the NRC, has determined that if the very small amounts of liquid waste residues left in the tanks are mixed with grout and stabilized in place then they will meet the low-level waste performance standards required for burial in a low-level waste repository.

The three States involved: Idaho, South Carolina, and Washington, agreed to this cleanup plan and either issued permits or indicated a willingness to do so. It was only after a third party intervened on a technical legal issue that this process come to a screeching halt. By narrowly reading the language in the statute, this small amount of liquid waste residue is being characterized at a higher level than I think is necessary, potentially adding billions of dollars in extra costs to DOE's EM program.

This interpretation is not backed by science as far as I can tell and will only result in delays at these sites that could extend for decades. This interpretation defies common sense and may require legislative action on the part of this committee. You can be assured, Madam Secretary, that resolving this issue will be one of my highest priorities as this committee considers the National Defense Authorization Act for Fiscal Year 2005.

Now I will call on Senator Graham.

Senator GRAHAM. Well, number one, I would like to associate myself totally with your statement. I think that is a very appropriate way that we need to address this problem. If legislative action is necessary, so be it. I just hate to see a bunch of money wasted for no good, and that is not a technical evaluation. That is just my view of things. I really believe that the standards that we are trying to achieve can be met without spending \$50 billion unnecessarily.

However, I think it is the actinon and cesium separation process at Savannah River that is sort of unconnected to the lawsuit. Will the funds to allow that separation process be released here, or why are they tied together?

Ms. ROBERSON. Senator, you are referring to what we call the salt processing project. What that process does is take waste, a fraction of the waste from the tank, and it stabilizes it, the large majority of it, for disposal in a form other than being disposed of at the geologic repository. So it is indeed impacted. The risk of proceeding with that activity following the Idaho district court is cause for concern for the Department and is considered part of the \$350 million account.

Senator GRAHAM. Thank you.

Thank you, Mr. Chairman.

Senator ALLARD. Thank you, Senator.

I also have some questions here for both you, Madam Secretary Roberson, and then Mike Owen. I will address them to you, Mr. Owen, and then if you feel the need to chime in, why do you not go ahead and do that, Madam Secretary.

Ms. ROBERSON. Thank you, sir.

Senator ALLARD. I guess I do have separate questions for both of you, but most of them are for you, Mr. Owen. My office already received numerous phone calls from workers who are concerned about their retirement and health benefits. I am concerned that information regarding retirement and health benefits may not be reaching the workers. Specifically, I am interested in hearing from each of the witnesses on retirement and health benefits for the workers before, at, and after closure of Rocky Flats. Frankly, I would be interested in knowing how these same types of issues are being addressed at Fernald and Mound.

So my first question I guess is to you, Madam Secretary. As an example, can you please help explain what DOE's and Kaiser-Hill's responsibilities are to provide retirement and health benefits leading up to the closure of Rocky Flats? Mr. Owen, do you want to go ahead?

Ms. ROBERSON. We worked that together, Mr. Chairman.

Mr. OWEN. I may be a bit more schooled in that. We have worked it very closely.

At Kaiser-Hill at this hour, there are terms in the contract that they are currently operating under. Those terms remain in effect and will until closure and thereafter if need be. They would require Kaiser-Hill to continue to deliver the pension and health services and benefits that they have been doing to date.

When we, LM, working with EM, devise and develop the new model for delivering those services, we will then turn to Kaiser-Hill and say: Okay, under the terms of your contract we are now saying this is the system we are going to use; fall in on it. They will do that at that time.

We envision the establishment and the operation of something that we commonly refer to somewhat generically as a National Stewardship Entity as one central focal point that would serve the former contractor workers at Rocky Flats, Colorado; Fernald, Ohio; Mound, Ohio; and Pinellas, Florida; where we have already closed, and any other sites that we may come across as we go into the future. That one National Stewardship Entity would then be responsible for delivering those services, those pensions, those health benefits, doing everything for those workers, such as the actuarial calculations, processing benefit claims, and adjudicating claims. Many of the functions that you would find in such a human resources shop normally, would be done by that National Stewardship Entity.

Until we relieve them and fall in on this new system, Kaiser-Hill is contractually obligated to continue to do what they are doing to this day. It is natural that as we get closer to that closure date these benefits are very near and dear to everybody's hearts, not just at Rocky Flats or Fernald, all over the country. You read about it on the front page of the paper every day. People become a little anxious, a little concerned: Oh, well, I see the site is being demol-



ished, there is no longer a human resources office up there where I used to go; what am I going to do?

We are receiving increased numbers of those types of questions. I had envisioned originally when we went into a contractual relationship with the National Stewardship Entity, this central focal point to deliver these goods, that part of the terms of that contract would require them to operate a first-class, state of the art, high-quality customer service operation with a national call center, and to include for some period of time what I refer to as a storefront benefit counselor's presence in those local communities to help answer the questions.

In discussions on that, we have had some of the other delegation members from Colorado and the other sites, and the pace of inquiry has picked up probably a little earlier and quicker than we thought. I think one of the ways—and I am looking at that now—to help address that would be to identify an appropriate, reasonably senior level Federal employee or two or three, whatever it takes, to cover those communities here in the interim, maybe about a year earlier than we thought, because it looks as though the pace of inquiry has quickened, quicker than we thought it would.

But until that stewardship entity is on board and under contract, he is the guy that is going to actually manage the nitty-gritty details of their benefits programs. But in the interim, I am looking to find a way to put someone in there who is comprehensively knowledgeable about these types of things and can help answer their questions and explain how the system is going to work.

So far we have explained it to the union heads, management, and others. But now we have to get it down to the individual workers.

Senator ALLARD. Does LM have the dollars in the budget in fiscal year 2004 or fiscal year 2005 to meet these new requirements?

Mr. OWEN. I do not at this time. I had not planned for this type of Federal presence as such. It would not be an inordinately expensive operation, but there would be some cost to it.

Senator ALLARD. Is there an office you could share with somebody else?

Mr. OWEN. I would have to look at the various options. Maybe Ms. Roberson's facilities are still available, subletting from her or sharing office space; looking at some of her Federal employees that may be shortly being ramped out of her organization. Maybe they can come to mine. I have to explore all those possibilities. It is not something I set out to budget for specifically, but I will look at what I have internally and see how we can accommodate.

Senator ALLARD. Early on here I do not know whether you can hold a full-time office or even a part-time office, but at least some time when they could come in and look somebody in the eye and say, this is my problem, this is what my concerns are, and they could get a response.

Mr. OWEN. Initially I would anticipate that the person or persons would be shared among Rocky, Fernald, and Mound. They would maybe spend half the time out in southwestern Ohio and half of it back in Colorado. Announced hours, make an appointment, this type of thing.

Senator ALLARD. That sounds like you are moving in the right direction.

The other question I have here—and I do not know which one of you wants to answer this, but this is the question. Does Kaiser-Hill have adequate human resources professionals available to answer questions about retirement and health benefits?

Mr. OWEN. I will start with that. I believe that they do at this hour. I think we will continue to watch to make certain that they do.

Senator ALLARD. Has there been some training or something—

Mr. OWEN. Well, to be perfectly honest, I will say Kaiser-Hill is first-rate at this. They have put together a very progressive, modern, state of the art employee relations career transitioning operation, and I have every confidence that they can and will continue to do that. I think human nature, as things start to go away, sometimes you lose some of your best people. We will have to watch and see if that gets to be an issue.

But I know Kaiser-Hill is tuned in to that and they are doing a very good job so far, sir.

Senator ALLARD. Very good.

I would like to turn to the pension and health benefits after closure. I understand that LM is working on a concept to ensure the continuation of worker pension and medical benefits. Can you please explain this concept in more detail?

Mr. OWEN. I partially went into that in my earlier answer, sir. I will try to explain, but it is a rather complicated system. As we sit today, so to speak, the dollars that pay for a former Rocky Flats or Fernald or Mound employee, for his health benefits or his pension, are embedded down inside the management and operating (M&O) contract that is being executed by Kaiser-Hill at Rocky Flats at this hour. It is currently embedded there now.

When that contract expires, when closure is accomplished and the site is a wildlife preserve, we will not have that M&O contractor there as such, so we have to find an alternative way to deliver those goods. This is the National Stewardship Entity concept. At the same time, we will have to examine our ledgers, our budget-keeping procedures. We will have to identify those dollars that are currently down inside Ms. Roberson's M&O contract, pull out those sites that we have mentioned, and bring them up into a consolidated request for dollars under the line of LM. There will be one lump sum there that will cover multiple sites in some respects and give us more visibility of how much we are spending on that type of activity.

But we anticipate that in a fiscal year or two hence we will be requesting what will look like a big bump in LM's budget, but really it will be the funds that have been scattered about in the M&O contracts.

Senator ALLARD. Well, you helped clarify this.

I am concerned that the workers at Rocky Flats, Fernald, and Mound may be penalized in their pension due to the accelerated closure schedule. I think this is a concern that they have. So who is responsible for addressing the concerns of workers who may be close to deadline for retirement points?

Ms. ROBERSON. The responsible entity would be EM. Although we have no proposals before us, the contractor managing the work force would make proposals to the DOE that will receive consideration. We do not have any such proposals before us.

Senator ALLARD. Do you perceive having any, or are there any additional closure benefits or bonuses for workers who stay until closure?

Ms. ROBERSON. Mr. Chairman, we have very progressive programs at Rocky, and we actually used Rocky as the model for Mound and Fernald. We are not forecasting any additional benefits at those sites. We believe that we have very progressive programs at this point. So there are none that are at play that I am aware of.

Senator ALLARD. Mr. Owen.

Mr. OWEN. If I could add to that, Mr. Chairman. We did one enhancement at Rocky several years back. They went to, working with the contractor, what is known in the trade as a rule of 70, which is in the pension business you have a rule of 85 or 70 or whatever combination of years of service and age. That was a substantial sweetener or enhancement. That was done, and I believe it took effect in 2001.

Senator ALLARD. Your concern is, and I think you share it, as we move toward closure here you lose your good people, those that you have trained, right at the time when you may need them, because they get a job offer a year or 2 years and they are going to take something that perhaps has some longer tenure. So if there is some way we can keep hold of those people on, on board until we close out, that would be helpful.

Ms. ROBERSON. They have actually proven to be extremely capable with that at Rocky, in holding onto their work force. We continue to struggle with that, both on the Federal side and the contractor side, at the closure sites, though, and we continue to work at it to make sure that we can.

Senator ALLARD. Very good. Thank you.

During a recent meeting of the Rocky Flats Council of Local Governments several local governments expressed concern about the safety of the workers. Specifically, the local governments are worried that the effort to accelerate closure may result in safety violations. What steps are you taking to ensure worker safety during this accelerated closure process? I know that we have already gotten rid of a lot of the hazardous materials and I think that is a big step towards closure. But what additional steps might you be taking?

Ms. ROBERSON. We are covering all four corners of the world, quite frankly. We have a team of people that we send out, because we find that the most effective thing to do is to apply new eyes to our activities on a basis that allows them to be fresh and to see things that people do not see on an everyday basis. That has actually proven to be the most effective.

We are sitting down with our contract managers, going through safety statistics. The safety performance at all of our sites has been elevated to the Deputy Secretary for review. The Deputy Secretary looks at our safety performance on a site-by-site basis, occurrence-by-occurrence basis, every quarter. So the level of attention has in-

creased and the number of resources that we are applying has increased, as well as the impacts of poor performance in this arena from a consequence perspective for our contractors.

Senator ALLARD. I would like to move on to another subject, and this is for you, Madam Secretary. The DOE announced a new Design Basis Threat (DBT) level to increase the amount of security at DOE and NNSA facilities in response to the attacks on September 11. At sites at which EM manages, but which still have NNSA activities, how is each program making sure the security requirements are being met across the entire site?

Ms. ROBERSON. The one key site that we have that fits that category is Savannah River. At the site level, the NNSA management staff and EM management staff work together to make sure it is integrated, since it is provided by the same contract, so it has to be integrated at some point because the same contractor provides the service.

So for those activities that are specific, required protection for them, they are funding those, but for the site-wide activities EM is responsible for those.

Senator ALLARD. So they have worked out some cost-share agreements and what-not?

Ms. ROBERSON. They have worked out the specifics of the activities and who is responsible for what at the site level.

Senator ALLARD. Is there any confusion remaining about their responsibilities between EM and NNSA?

Ms. ROBERSON. Not that I am aware of, Mr. Chairman.

Senator ALLARD. I have a question on the Price-Anderson authority for indemnification for DOE contractors who work on nuclear matters. Apparently that expires at the end of this calendar year. Can you please describe what difficulties EM will have if the Price-Anderson indemnification authority is not extended beyond its expiration at the end of this calendar year?

Ms. ROBERSON. Mr. Chairman, it will likely be the same reaction we saw when last we approached this point of not knowing whether it was going to be extended or not. The contractor has become very concerned about its liability in these contracts and that coverage and are resistant to progressive changes in the contracts or signing new contracts.

Senator ALLARD. Now, are there any contracts you anticipate that will be signed in fiscal year 2005 which would be impacted by the expiration of the Price-Anderson authority?

Ms. ROBERSON. Well, our Idaho contract would be a 2005 new contract. I think most of those that are in the procurement phase now other than Idaho are 2004. But we will have new procurements that are out over this year, so we will clearly have other procurements that could be impacted.

Senator ALLARD. Very good.

We are now being joined by Senator Nelson of Florida. Glad to have you with us, and if you want to make an opening statement we will give you some chance to make an opening statement, and then if you have some questions you are welcome to pose those.

Senator BILL NELSON. I take it you have to exit; is that correct?

Senator ALLARD. Let me see. Let me look at my schedule here. Yes. Obviously I am going to have to stay here for a little while longer, but yes, at some point in time I would like to exit.

#### STATEMENT OF SENATOR BILL NELSON

Senator BILL NELSON. I was racing here to get here, having had the delightful duty this afternoon of joining with our former colleague and a former member of this committee, Senator Max Cleland, as he is being sworn in as a member of the Board of Directors of the Exim Bank. I came because I understood you had to leave, therefore so I could go on and conduct the business. So at your pleasure, Mr. Chairman.

Senator ALLARD. I think what I will do is go ahead and let you run the meeting. Do not do anything with unanimous consent. [Laughter.]

Then when you are finished, if you will go ahead and adjourn the meeting I would appreciate it. Thank you very much.

Senator BILL NELSON. Thank you. I bring you greetings from Senator Max Cleland.

Senator ALLARD. Give him my best.

Senator BILL NELSON [presiding]. He looks better than I have seen him look in a long time and is looking forward to this new challenge that he is taking on.

This Strategic Forces Subcommittee hearing is in the midst of a busy and short year. I thank you all for coming today. Among many of the legacies of the Cold War, we have as the subject matter of today copious amounts of waste materials that were stored or improperly disposed of, hundreds of highly contaminated facilities, thousands of square miles of contaminated soil, and millions of gallons of contaminated ground and surface water.

All of this has to be cleaned up and decontaminated, torn down or otherwise put in a safe, stable, long-term closure, treated, and permanently and safely disposed of. The focused effort to deal with the waste, the soil and water contamination, and the excess facilities actually began back in 1989, and considerable progress has been made.

So I am going to dwell in three areas to discuss: one long-term, one mid-term, one near-term. The DOE has a long-term responsibility to ensure that the cleanup, including the demolition of contaminated facilities, is fully completed. As noted last year, just one DOE-owned site, the Pinellas plant in Florida, has closed. Rocky Flats, Fernald, and Mound will hopefully close in 2006. Others, such as Hanford, will have another 30 years to go.

How DOE plans to maintain its commitment to cleanup in the long term is one of the issues that I would like you to continue to discuss. Last year, DOE created LM to address some aspects of the future management issues. In the 2005 budget DOE has proposed to create another new office, the Office of Future Liabilities. How these two offices and the EM office all fit together is something I want to find out about.

Ms. Roberson and Mr. Owen, I hope you can help unravel and explain some of these roles for all three of the offices, including why three offices are more efficient than one.

The DOE and the contractors continue to assure us that Rocky Flats will be closed by 2006. If this closure schedule is met, it will be a remarkable achievement and the result of a concentrated effort of a number of parties such as DOE, the contractor, Congress, community, the State, and the EPA; all focused on accelerating the cleanup.

The Rocky Flats model could be used as a model for other site and facility closures, Ms. Roberson. I know you are trying to do this. A key aspect of that model, however, was the decision to provide substantial additional amounts of money up front to accelerate the cleanup. "The DOE fiscal year budget request for 2005 represents a peak year of our investment strategy to accelerate cleanup and risk reduction." This implies that in future years the budget will be reduced. I think many sites were under the impression that the budget would level off when Rocky Flats was closed and the funds freed up as a result of the closure would be available for accelerated cleanup at other sites. That is another issue I want to discuss.

DOE has worked aggressively to develop accelerated cleanup schedules at other sites. There are at least two key elements to this accelerated pace. The first is fully funding the contracts to support the commitments made by the contractors. That is the money issue I just mentioned. The second is renegotiating the various cleanup agreements with the States and the EPA in ways that will reduce the scope and cost of the cleanup.

Ms. Roberson, while I would like to hear from you today about the general success of this effort, I am interested in one particular area of the work, which is dealing with the WIR spent nuclear fuel. This effort is an area where DOE's plans have been challenged in court, and I understand DOE is considering a number of potential options to resolve the issue.

So we welcome you all today, and where some of this has already been covered then let us not repeat. From those general comments, if you could start from there, and then I will go on in with some specific questions.

Ms. ROBERSON. Thank you, Senator. We actually had a fairly lengthy discussion on the WIR. So I would be glad to answer specific questions, but I think we actually had a long response on the record at this point, sir.

Two things, if I can. The issue of the budget leveling out, I would like to address that; and then I would be glad to explain the relationship between EM and the proposed Office of Future Liabilities in conjunction with Mr. Owen on LM.

In 1997 the DOE developed what was called Path to Closure, which was a complex-wide strategy for cleanup which included holding all sites level in funding except the closure sites, Rocky, Fernald, and Mound. The then-Assistant Secretary of EM, Al Alm, went from State to State, talked with the regulators, governor's office, and others to reach this agreement. It is documented in a document that was provided to Congress. Those States would agree to hold their budget level while they supported additional investment at Fernald, Mound, and Rocky to accelerate cleanup. Once those cleanups were completed, that delta in budget would be reinvested in those States.

When we completed the Top-to-Bottom Review in February 2002, one of the recommendations was that, one, the States did not seem to remain committed to that strategy; and two, that the risk was growing at the other sites and we needed to make the same commitment to those States. There was born the Accelerated Cleanup Program for the complex, which resulted in an increased budget for all sites, not just the closure sites. So we have been very clear with our discussions and negotiations with the States that the Path to Closure strategy of holding everybody, holding the EM program at a \$5 billion budget annually, completing the cleanup of three closure sites, and then reinvesting that budget in the others was not the strategy we were moving forward; we were making an increased investment in all of the sites. That discussion did occur with the States as we reached agreement with them on the accelerated cleanup program.

EM has a very extensive project baseline to complete. I think the DOE has looked forward and said there are a host of facilities yet to be cleaned up; we need to plan and we need an office that can look objectively and work between the programs to identify when facilities would become available or property would become available for cleanup. That is the intended purpose of the Office of Future Liabilities.

The actual management structure has not been decided. But Senator, I know you can understand what we are trying to do is make sure we do not find ourselves overwhelmed like we have been before, where we have two or three programs negotiating with one State, one set of State regulators, on different elements of environmental compliance requirements or trying to operate a facility turned over to EM that sits in the middle of an operating complex.

I think forethought and planning are necessary and that is what that office is intended to do.

I will let Mr. Owen talk about the rest.

Mr. OWEN. If I could add, Senator, from the Office of Future Liabilities, on those sites that Ms. Roberson's program has identified for accelerated closure, remediation activities, those sites where we know the course of action are coming to the Office of Future Liabilities once she has completed her job.

It was recognized by the Secretary a while back as he went about organizing the Office of Future Liabilities that Ms. Roberson's mission is to very specifically, with a large amount of money, accomplish a tremendous amount of remediation work at some very environmentally contaminated sites. She is going to do it ahead of schedule, tremendously ahead of schedule, and tremendously under budget. Let us let her focus on that. Why would the official responsible for devising successful accelerated remediation strategies at the same time be responsible for devising a means of continuing to deliver pension and health benefits to the affected retired contractor workers? It seemed logical to put that into a different office and let that office focus on that, the legacy of what is going to be left over when she has cleaned it and turned Rocky Flats, for example, into a wildlife preserve. Then my office would be capable of, and we were responsible for, what we hope at that stage of the game is a much more passive, low dollar effort—it will only need small amounts of money—to surveil, to maintain, to monitor the remedi-

ations that she has put into place and make sure that they are successful and they are tended to and maintained properly.

So it allows her to focus on her mission and we identified new evolving missions for my office to focus on, the legacy things, the pensions, the benefits, the surveillance and monitoring, and keeping hundreds of thousands of cubic feet of records from these sites.

Ms. ROBERSON. So if I may try to put the three pieces of this together, you have front-end planning, and we are focused very much on projectizing the cleanup program. You have front-end planning of what is to come and how best to manage it so that we keep control of our finances and our practices. That is Office of Future Liabilities. You have environmental remediation, responsible for the physical cleanup; and LM for the after-cleanup activities long-term.

Senator BILL NELSON. In the Natural Resources Defense Council (NRDC) suit challenging DOE's plans to deal with the tanks, alledging that DOE does not have the option as a matter of law to leave the tanks in place, even with some small amounts of waste, the suit goes on to say that DOE does not have the ability to treat and segregate the waste removed as low-level and high-level waste. Up to this point, the NRDC has been successful in its litigation and the matter is currently on appeal to the Ninth Circuit.

Is there any reason to believe that this case should be settled?

Ms. ROBERSON. I am certainly not the legal representation for the Department, but I certainly am not aware of an approach for settlement or discussions to that vein.

Senator BILL NELSON. Could you get us an answer for the record?

Ms. ROBERSON. Yes, absolutely, sir.

[The information referred to follows:]

DOE is very interested in resolving the status of its cleanup plans at these sites but firmly believes that this cannot be done through a series of settlement agreements. The Department's cleanup plans for the 91 million gallons of tank wastes in Idaho, Hanford and Savannah River depend on DOE being able to classify lower activity waste from reprocessing as low-level or transuranic (TRU) waste. However, the Idaho District Court decision struck down the portions of DOE's Order 435.1 that address when waste from reprocessing may be classified as other than high-level waste. If DOE were to proceed with cleanup activities that depend on DOE being able to classify some of the waste in the tanks as low-level or TRU waste, it would be making hundred-million-dollar-plus investments in technologies with no confidence that it had the authority to classify the waste as it had done, and hence with no assurance that the waste form it spent this money creating had a disposal pathway.

The District Court decision said very little about what kind of waste classification criteria it believed might be lawful. Thus, the Department faces the prospect that any decisions it makes to classify tank waste as other than high-level waste would readily be the subject of legal challenge. Therefore, DOE has concluded that it should only move forward with large investments to turn tank waste into material slated to be disposed of as low-level or TRU waste if there is a satisfactory resolution of the legal uncertainty either by the courts or by new legislation.

Entering into settlement agreements with the various parties to the lawsuit would not provide the Department the needed legal certainty. Potential legal challenges are not limited just to the parties to the current lawsuit. They could come from many other groups or individuals. Also, settlement would not necessarily prevent the Idaho District Court decision from being cited as precedent. Therefore, unless the district court decision is either reversed on appeal or modified by new legislation, it will continue to be a significant obstacle to DOE's ability to proceed with its longstanding—and State approved—tank closure plans.

Senator BILL NELSON. To complicate this matter further, DOE has submitted a \$350 million fiscal year budget request that is con-



tingent on either legislation that would allow DOE to carry out its plans or the litigation being resolved in DOE's favor. DOE therefore is using the \$350 million as an incentive for the involved States to pursue and obtain legislation or to withdraw from the litigation.

If there is no legislation this year, what will you do?

Ms. ROBERSON. Well, Senator Nelson, we will likely not be in a position to proceed with the work that \$350 million was intended to buy. Let me clarify one thing. The plans that we propose to carry forward are plans that were negotiated with the host States for those sites. We are not proposing to do something inconsistent with the triparty agreement at Hanford. In fact, it supports the triparty agreement. We are not trying to do something inconsistent with our clean water permit at Savannah River. It is consistent. We close two tanks using this process at Savannah River. We are not proposing to do something inconsistent at Idaho. We have approved closure plans at Idaho that we cannot implement.

The issue for us with the \$350 million is that it was intended to pay for stabilizing our processing material into a form that would be disposed of in a means other than going to a geologic repository. Those activities, we believe, because of the judge's ruling are indeed at risk of proceeding.

Senator BILL NELSON. So if there is no legislation this year, what will you do?

Ms. ROBERSON. There are certain activities we planned in our high-level waste program that we cannot proceed with until there is resolution one way or the other.

Senator BILL NELSON. What about if the litigation is not resolved this year? What will you do?

Ms. ROBERSON. We will not proceed with those activities until there is some resolution in this matter one way or the other. The judge cautioned us not to proceed with plans that were in place, and these were clearly the plans that were in place.

Senator BILL NELSON. Is it the same answer if the litigation is not resolved in DOE's favor?

Ms. ROBERSON. Or in favor of the processes that have been developed and incorporated into our cleanup plans with our host States.

Senator BILL NELSON. Well, what about the construction of the Hanford waste plant? Will it be stopped under any of these three scenarios: no legislation, no resolution of the litigation, or resolution of the litigation adverse to DOE?

Ms. ROBERSON. At this point, the Department's belief is that construction of a vitrification plant, because its primary purpose is preparation of material to go to a geologic repository, is not an issue. There is a small part of the construction of that facility that is to prepare waste for something other than a geologic repository, but we do not believe we have encroached upon that yet.

So our plan at this point is to continue with construction of a plant.

Senator BILL NELSON. When do you plan to submit legislation?

Ms. ROBERSON. Can I get back to you really quick on that?

Senator BILL NELSON. Yes.

Ms. ROBERSON. Thank you, sir.

[The information referred to follows:]

DOE transmitted an initial legislative proposal to Congress last summer (August 1, 2003) to remedy this waste incidental to reprocessing problem. Since that time, we have been in discussions with affected States over the impacts the Idaho District Court decision has had on our activities at Hanford, the Idaho National Laboratory and the Savannah River Site. We attempted to address issues the States raised about our initial proposed legislative approach. We did reach agreement with the State of South Carolina. The Senate included a provision based on that agreement in section 3116 of the Fiscal Year 2005 Defense Authorization Bill. The administration has indicated its strong support for this provision.

Senator BILL NELSON. It is clear that the EM office would like to go out of business, whether it is by 2025 or maybe 2012 or some other date. The crystal ball is murky. At any date, there will still be cleanup to be done. If it closes in 2012, there will be substantial cleanup work remaining. In preparation for closing the EM office, you have stopped taking new cleanup work and the office is in the process of shifting responsibility for the newly generated waste as well as other activities to other DOE program offices.

There is a goal to close EM. When will that happen?

Ms. ROBERSON. There is a goal to complete the scope of work that the EM program is responsible for, and our current baseline says that we can do that around the time frame of 2032. We are challenged to continue to accelerate that, but DOE has proposed the Office of Future Liabilities begin the planning and develop management options for carrying out the future cleanup of those facilities that are currently active today because of ongoing operations. The Department has not precluded EM as one of those options, but it is keeping the options open because we have learned valuable management lessons as to how to do this.

So the DOE has not made a decision as to whether that would be EM, an EM-2, or not. It simply has not made a management decision. It is focused on how to manage and what the rate of return would be for ongoing operations today as they complete those missions.

Senator BILL NELSON. So there is a plan that lays out that path to closure?

Ms. ROBERSON. For EM?

Senator BILL NELSON. Yes.

Ms. ROBERSON. I would say the Top-to-Bottom Review is the first strategic plan, and we have recently done an update to that and provided it to Congress. There is a status of the Top-to-Bottom Review that has been recently provided to Congress, too.

Senator BILL NELSON. Well, once you close it what work will still need to be done and who will do it?

Ms. ROBERSON. When we say "close," we are speaking of completing the work the program is currently responsible for. Once cleanup is completed at a particular site, if there is no ongoing operation, LM would step in. If there are ongoing operations, the Department is attempting to develop a plan as to how that cleanup would occur and when it would become necessary.

So I cannot tell you the answer because the Department is venturing into the planning process for that work that is currently not in EM.

Senator BILL NELSON. So you are going to move some of those activities to LM and the Department has proposed in this budget

a new Office of Future Liabilities and it will apparently take the new cleanup projects?

Ms. ROBERSON. No, sir.

Senator BILL NELSON. That is not so?

Ms. ROBERSON. No. It will do the planning for sure and provide management options for the DOE to make a decision. One of those options will likely be EM. I do not know, but they are going to look at the management structure and propose options based upon when that work would become available for cleanup.

Senator BILL NELSON. Well, would that new office take over the old EM activities when EM goes out of business?

Ms. ROBERSON. When EM goes out of business for the scope of work that it has, it should be complete. So there would not be cleanup intended for that office to take over at all.

Senator BILL NELSON. What about the newly generated waste?

Ms. ROBERSON. The newly generated waste is proposed to stay with the generating organizations. So when they cease to operate, there is no more newly generated waste to be passed on.

Senator BILL NELSON. So you are saying that when EM goes out of business there is not going to be any remaining work done by this LM, and if there is any future waste it is going to be assigned to whoever the generating office is?

Ms. ROBERSON. When EM completes cleanup at a site and there is no ongoing mission, there is not another landlord, the NNSA does not have an ongoing mission, as in the case of Los Alamos. NNSA is the landlord. They have an ongoing mission there. That would not transfer to LM. Once we complete the cleanup scope that we have, NNSA still remains the landlord and it is still their site, so that it would not move.

Mr. OWEN. Also, LM will take on some functions, but ideally, as I believe I said earlier this afternoon, it would be in comparison to the fevered pace that EM is conducting today at, say, Rocky. It would be a fairly passive activity, where we would be conducting long-term surveillance and maintenance and stewardship activities. We would be monitoring pump-and-treat ground wells, making certain that containment cells are kept in good order, that the appropriate engineering and institutional controls are kept up, and the records of those activities are available to the public.

It would be a much lower level of activity conducted by LM, because Ms. Roberson's organization actually ideally has been successful in remediating the site, removing the vast majority of what ever could possibly be threatening to human health and the environment. It is our job then to monitor and make certain that that is indeed the case.

Senator BILL NELSON. Tell me, what is this new creature called the Office of Future Liabilities?

Ms. ROBERSON. The Office of Future Liabilities is intended to do planning to work with all the programs that have operations and facilities that are not in the EM program now, to ascertain when the missions will end, when facilities would be available for cleanup, or when sites would be available for cleanup, and to lay that out in a time line that allows the DOE to make informed management decisions as to how to carry out that work.

So it is initially a planning function only, planning for the scope of work and proposing management options for how to carry out that work.

Senator BILL NELSON. Let us talk to you, Mr. Owen, about LM.

Mr. OWEN. Yes, sir.

Senator BILL NELSON. One of your primary responsibilities will be to continue the health insurance and retirement benefits for workers from the closed DOE sites and facilities. Do you believe that any legislation is needed to carry out your mission to protect the workers?

Mr. OWEN. Several years ago when we looked at this pending liability, this pending legacy that we needed to manage, we very carefully looked at it and determined that we felt we could devise a model to deliver those services successfully to the rightful recipients without requesting legislation. As we continue to work through the process, we have run across a number of hurdles, but we have worked around them internally. We are getting a tremendous amount of cooperation from the U.S. Department of Labor on the Employee Retirement Income Security Act (ERISA), as well as the Internal Revenue Service (IRS).

At this hour we do not believe that legislation is needed. We appreciate the inquiry as to if legislation will be needed. We may encounter problems that would cause us to conclude that we need legislation, but right now we believe we are on a course that will allow us to accomplish it.

On a side note, we are doing it successfully, even though we are going to change the model a little bit, for the former contractor workers at the Pinellas plant outside of Tampa. That is a group of former contractor workers, where we are getting the job done now and we are planning to continue to be able to do that for those workers. It will be a different model than we are following for those people now.

But my office budget request does actually include the pension dollars for the former contractor employees at the Pinellas site.

Senator BILL NELSON. Could any legislation help you to simplify the whole thing?

Mr. OWEN. I would not rule that out. I do not think I could give you a comprehensive answer at this time, Senator, but I will keep that in mind. But as we move forward, realize that there is an interest here that, if something needs to be statutorily put in place or legislatively clarified, that we would welcome the opportunity to come and work with you and your staff.

There are a lot of issues involved in doing this, sir. But right now things are working and it is coming together. Tomorrow morning it may be a different story. We will blow the whistle if it is. We will let you know.

Senator BILL NELSON. Ms. Roberson, does each facility have the full amount of funds anticipated in each contract?

Ms. ROBERSON. I believe we have requested the full amount of funds anticipated in each of our contracts.

Senator BILL NELSON. Would you give us a funding plan by the major prime contractor for the next 5 years?

Ms. ROBERSON. I can give you that if we have contracts that go for 5 years. That would be a subset of those contracts we have in place. For those we can.

Senator BILL NELSON. What would a contract typically go for?

Ms. ROBERSON. Well, they start at different points. They may be 5-year contracts, but if it started in 2000 then there is 1 year. A number of our larger contracts do expire in the next 2 years.

Senator BILL NELSON. All right. Well, give us what you have in the remaining.

Ms. ROBERSON. Yes, we will do that.

[The information referred to follows:]

Office of Environmental Management						
Major Contracts Term and Funding						
(dollars in millions)						
Contract	Award Date	Completion Date	Contract Value	FY 03 Funding	FY 04 Funding	FY 05 Request
CH2M Hill Mound Inc. (Mound)	12/5/02	3/31/06	\$ 314	\$ 73	\$ 98	\$ 98
Fluor Daniel Hanford, Inc (Hanford)	8/6/96	9/30/06	\$ 2,857	\$ 676	\$ 752	\$ 732
Fluor Fernald, Inc (Fernald)	11/20/00	12/31/06	\$ 2,600	\$ 322	\$ 326	\$ 322
Kaiser Hill LLC (Rocky Flats)	12/5/02	12/15/06	\$ 4,303	\$ 669	\$ 649	\$ 659
Washington Closure Co, LLC (Hanford River Corridor)	4/24/03	4/25/18	\$ 2,766	\$ -	\$ 154	\$ 158
Westinghouse Savannah River Co (Savannah River Site) *	10/1/00	12/31/06	\$ 7,157	\$ 1,079	\$ 1,162	\$ 1,217
Bechtel BWXT Idaho, LLC (Idaho) *	6/4/99	1/31/05	\$ 2,158	\$ 408	\$ 385	\$ 140
Bechtel Jacobs Co, LLC (Oak Ridge)	12/18/97	9/30/08	\$ 1,810	\$ -	\$ 366	\$ 426
CH2M Hill Hanford Group Inc. (River Protection)	9/30/99	9/30/06	\$ 2,277	\$ 410	\$ 386	\$ 362
Contract	FY 06 (Projected Contract Requirement)	FY 07 (Projected Contract Requirement)	FY 08 (Projected Contract Requirement)	FY 09 (Projected Contract Requirement)	To Complete	
CH2M Hill Mound Inc. (Mound)	\$ 45	\$ -	\$ -	\$ -	\$ -	
Fluor Daniel Hanford, Inc (Hanford)	\$ 697	\$ -	\$ -	\$ -	\$ -	
Fluor Fernald, Inc (Fernald)	\$ 324	\$ 81	\$ -	\$ -	\$ -	
Kaiser Hill LLC (Rocky Flats)	\$ 650	\$ 100	\$ -	\$ -	\$ -	
Washington Closure Co, LLC (Hanford River Corridor)	\$ 163	\$ 168	\$ 173	\$ 178	\$ 1,773	
Westinghouse Savannah River Co (Savannah River Site) *	\$ 1,155	\$ 301	\$ -	\$ -	\$ -	
Bechtel BWXT Idaho, LLC (Idaho) *	\$ -	\$ -	\$ -	\$ -	\$ -	
Bechtel Jacobs Co, LLC (Oak Ridge)	\$ 392	\$ 362	\$ 263	\$ -	\$ -	
CH2M Hill Hanford Group Inc. (River Protection)	\$ 362	\$ -	\$ -	\$ -	\$ -	
* EM portion of contract scope only						

Senator BILL NELSON. Keeping Rocky Flats as well as the other cleanups on the accelerated cleanup schedule, that is important. Many of the other sites apparently do not have enough money to keep their cleanup programs on schedule. Money, that is one need. But there is also the need to ship nuclear waste and other nuclear material to Savannah River. As a receiving site for the plutonium wastes from Rocky Flats and other materials from other sites, Savannah River is playing a very important key role in supporting the cleanup.

The perceived delay in 2002 in the Mixed-Oxide (MOX) Fuel Fabrication (MOFF) Facility that is going to be built at Savannah River to process the plutonium has strained relations, to say the least, with the governor of South Carolina and the DOE. This year there is a new concern about a delay in construction of the MOFF Facility. So what impact would a delay in that plant construction have on the cleanup and can you give us some notion of its impact by this time?

Ms. ROBERSON. Actually, Senator, since that is an NNSA project, I would like to confer with them and respond for the record if I might.

[The information referred to follows:]

I believe the Department is endeavoring to mitigate the impact of any delay in the construction of the MOFF Facility. Consolidating all of EM's surplus plutonium, approximately 13 metric tons, is a key element of EM's cleanup plans and the Department's national security goals. Although the Department is evaluating the consolidation of the approximately 13 metric tons at the Savannah River Site, no decision has been made. Any decision to consolidate surplus plutonium would be subject to appropriate National Environmental Policy Act review.

Senator BILL NELSON. Well, what I am looking for is a 1-year delay, 2-year delay, 5-year delay? What impact would it have on your program?

Ms. ROBERSON. I would really need to confer with them. I do not know what a 1-year delay would mean from an operating capability without talking to them first. So if I could, we will respond, but I can't speak for their plans right now.

Senator BILL NELSON. Do any of the staff have any further questions that you want to ask?

Ms. ROBERSON. Oh, that is not fair. [Laughter.]

Senator BILL NELSON. Anybody in the audience want to ask any questions? [No response.]

We are going to keep the record open for 3 days and also we will keep the record open to receive the information that we have requested. Instead of asking some additional questions, I am going to submit some in writing to you for the committee.

Everybody have a good afternoon and the meeting is adjourned.

Ms. ROBERSON. Thank you, Senator.

Senator BILL NELSON. Thank you.

[Questions for the record with answers supplied follow:]

#### QUESTIONS SUBMITTED BY SENATOR WAYNE ALLARD

##### SECURE TRANSFORMATION ASSETS

1. Senator ALLARD. Secretary Roberson, are you satisfied that the National Nuclear Security Administration (NNSA) has enough secure transportation assets to meet Environmental Management's (EM) transportation needs during the next several years?

Ms. ROBERSON. In recognition of the multiple program demands for secure transportation assets, the Secure Transportation Advisory Board has been formed. This board, which includes a member from my staff, is very effective in prioritizing needs and helping to ensure that programs, such as EM, are able to meet its commitments successfully.

However, the Department is facing a challenge to ensure that there are adequate Federal agents (couriers) hired and trained to meet the increased demands. This challenge is further complicated by competition by other agencies for these same resources. As the agent force increases, it will enable the NNSA to ensure EM that our commitments in the next few years can be met.

#### OFFICE OF LEGACY MANAGEMENT

2. Senator ALLARD. Mr. Owen, what is the regulatory structure of the Office of Legacy Management (LM)?

Mr. OWEN. LM is responsible for long-term surveillance and maintenance activities at more than 60 sites (with an additional 45 anticipated over the next 5 years) across the country where active environmental remediation has been completed. LM is also responsible for overseeing workforce restructuring of contractor employees operating at the Department of Energy's (DOE) sites and for overseeing benefit continuity for contractor employees after site closure.

LM's long-term surveillance and maintenance work is conducted under a variety of legal and regulatory frameworks. Work at many of our current sites is subject to the Uranium Mill Tailings Radiation Control Act. LM conducts activities at these sites under a license from the Nuclear Regulatory Commission (NRC) in accordance with NRC regulations. Additionally, a number of our sites fall under the Comprehensive Environmental Response Compensation and Liability Act and operate in accordance with U.S. Environmental Protection Agency (EPA) requirements. OLM must also comply with a variety of applicable state requirements.

Workforce restructuring of contractor employees at DOE sites is conducted consistent with section 3161 of the National Defense Authorization Act for Fiscal Year 1993. Distribution of funds for the retired contractor workforce on sites where active environmental remediation has been completed is conducted in accordance with the Employee Retirement Income Security Act (ERISA), U.S. Department of Labor rules and regulations, the Internal Revenue Service (IRS) regulations, and applicable State laws and regulations.

3. Senator ALLARD. Mr. Owen, there could be massive legal changes in the DOE's fiduciary responsibilities as sites close and relationships with the traditional contractors change. How does DOE see its role post-closure?

Mr. OWEN. The DOE will ensure that there are effective mechanisms in place to assure continuity of benefits for contractor employees after site closure. As in the case of ongoing sites, DOE's role will include contracting with the plan sponsor(s), providing funding, approving allowable costs, and providing appropriate contract oversight. The Department is not now the plan fiduciary of any contractor benefit plans and will not become the fiduciary after closure.

4. Senator ALLARD. Mr. Owen, what legal, accounting, benefit specialist, and actuarial resources does DOE have to perform that role?

Mr. OWEN. The Department has created LM to ensure that legacy responsibilities are effectively and efficiently managed. LM will work with the Office of General Counsel, the Office of the Chief Financial Officer, the Contractor Human Resource Management Office, and other DOE offices, as needed, to address post-closure requirements. Actuarial consultants for additional legal, benefit, and actuarial expertise also have been retained to assist the Department to ensure legacy responsibilities are effectively and efficiently managed.

5. Senator ALLARD. Mr. Owen, is there a need for more resources here?

Mr. OWEN. The Department has assembled an integrated team to develop and implement the post closure benefit program that includes key members of my staff as leaders and participants. At this time, the Department believes these resources, together with actuarial consultants who have been retained to provide additional legal, benefit, and actuarial expertise, are sufficient to implement the program and oversee contractor performance. We will routinely assess staff skills and levels to ensure that the post-closure benefit program is managed effectively and efficiently.

6. Senator ALLARD. Mr. Owen, what framework, if any, does DOE have in place to effectively review the contractors' obligations and costs for pension and post-retirement benefits on an ongoing basis?

Mr. OWEN. The Department reviews contractor obligations and costs for pension and other post-retirement benefits under the Federal Acquisition Regulation (FAR) cost principles and pursuant to DOE Order 350.1 or a special clause(s) pertaining to compensation and benefits. LM will analyze and evaluate existing processes and determine if additional mechanisms are needed for the administration of post-closure retirement benefits.

#### CLARIFYING THE DEFINITION OF CLOSURE

7. Senator ALLARD. Secretary Roberson, how does the EM program plan to close gap between physical closure and regulatory closure?

Ms. ROBERSON. The EM program will complete its cleanup mission and attain physical closure (e.g., all waste removed or adequately contained, all required engineering systems constructed and operating properly) in accordance with regulatory agreements, permits, and decision documents. Once EM has completed all necessary remedy documentation (e.g., Records of Decision, remedial action workplans) and transitions any remaining long-term response action management responsibilities (e.g., surveillance and maintenance of containment cells, operation and maintenance of ground water treatment systems) to LM or to the Program Secretarial Office responsible for ongoing missions at the site, the receiving organization will be responsible for final regulatory closeout. In some cases, regulatory closeout may occur years after EM completion. Accordingly, EM is responsible for providing the receiving organizations with all essential information to ensure they are fully equipped to conduct long-term stewardship, confirm remedies are performing as intended and ultimately demonstrate to our regulators that final objectives have been attained and regulatory closeout can proceed. We are working closely with LM and other Program Secretarial Offices in developing site-specific transition plans that will outline regulatory requirements (e.g., surveillance and maintenance, institutional controls), personnel and funding needs, and other activities (e.g., public outreach, records management) needed to provide for a smooth transition from one program element to another.

#### F-CANYON DISPOSITION

8. Senator ALLARD. Secretary Roberson, what is the current status of the decontamination and decommissioning (D&D) of the F-Canyon?

Ms. ROBERSON. Limited decommissioning of several of the support facilities will begin later this year. We are in the planning stages to determine final disposition of the facility.

9. Senator ALLARD. Secretary Roberson, is it your understanding that the Defense Nuclear Facilities Safety Board (DNFSB) is satisfied with your current plans and progress with the D&D of F-Canyon?

Ms. ROBERSON. DOE is not aware of any DNFSB issues or concerns associated with the plans and progress of F-Canyon deactivation. We are in the planning stages to determine final disposition of the facility.

#### ACCELERATED COMPLETION SCHEDULE

10. Senator ALLARD. Secretary Roberson, the fiscal year 2005 budget request for the 2012 and 2035 accelerated closure accounts is less than in fiscal year 2004. How will accelerated completion be accomplished with less funding?

Ms. ROBERSON. The reduction between fiscal year 2004 and fiscal year 2005 in the Defense Site Acceleration Completion, 2012 and 2035 Accelerated Completions accounts, is due to the decision to show separately the funding associated with the Waste Incidental to Reprocessing (WIR) court ruling. The \$350 million in fiscal year 2005 is for activities that are planned to be performed in the 2012 and 2035 Accelerated Completions accounts, should the legal issue be satisfactorily resolved. The following table displays the increases to the Defense Site Acceleration Completion, 2012 and 2035 Accelerated Completions accounts when the WIR-related funding is incorporated.



(In Thousands of Dollars)

Appropriation/Account	Fiscal Year				
	2003 Comparable	2004 Comparable	2005 Request	2005 Adjusted for WIR	2005 Adjusted vs. Fiscal Year 2004
Defense Site Acceleration Completion					
2006 Accelerated Completions .....	\$1,234,037	\$1,239,018	\$1,251,799	\$1,251,799	\$12,781
2012 Accelerated Completions .....	2,102,613	2,199,338	2,150,641	2,247,941	48,603
2035 Accelerated Completions .....	1,811,563	1,918,375	1,893,339	2,146,039	227,664
Safeguards and Security .....	254,747	291,124	265,059	265,059	(26,065)
Technology Development and Deployment	113,679	66,116	60,142	60,142	(5,974)
HLW Legislative Proposal .....	0	0	350,000	0	0
Total .....	\$5,516,639	\$5,713,971	\$5,970,980	\$5,970,980	\$257,009

## POST-CLOSURE LEGAL STATUS

11. Senator ALLARD. Secretary Roberson, will participants in individual pension/benefit plans have standing to sue DOE, either directly or as third-party beneficiaries, to enforce promises made in employment contracts?

Ms. ROBERSON. The primary rights of participants in pension and other benefit plans to enforce promises regarding the plans made in their employment contracts are against their employers (the contractors). They may also have rights against the plan fiduciaries. DOE is not a party to either the plans or to the employment contracts and is not a fiduciary of these plans. The participants have no third-party beneficiary status to sue under DOE's contracts with the contractors.

12. Senator ALLARD. Secretary Roberson, what is the impact of State law on contractor obligations where the contractor, like the University of California, is a State entity?

Ms. ROBERSON. Where a DOE contractor, like the University of California, is a (pure) State entity (not operating through a venture involving non-State entities), the formation of the plan documents and any trust, as well as the legal status of the employing contractor and its labor-management relations, are all primarily State law matters. The contractor's plans would not be covered by ERISA and the contractor's agreements concerning benefits would be a matter of State law regarding employment matters. Federal laws such as the National Labor Relations Act which may impact determination of benefits promised in other contexts would not be applicable.

## POST-CLOSURE ENTITY

13. Senator ALLARD. Secretary Roberson, DOE presently plans to establish an entity to regulate long-term pension and benefit matters after site closure. This will, it appears, be a very large entity with a very large responsibility. Does DOE have the resources to effectively monitor such an entity?

Ms. ROBERSON. The Department has in place an integrated team to oversee the post-closure benefit program. LM staff is an integral part of this team and will ensure that the appropriate resources are brought to bear to oversee this responsibility. Staff needs assessments are continuously being performed to ensure that adequate quantity and the right skills are on board to perform management and monitoring responsibilities.

14. Senator ALLARD. Secretary Roberson, how will DOE resist being drawn into benefit determinations and caving in to political pressure for benefit increases, when so many contractor employees are close to retirement?

Ms. ROBERSON. DOE will retain its arms-length relationship with contractor employees by contracting with the plan sponsor(s) responsible for any plan amendments which would increase or decrease benefits to retirees. DOE will retain the right to approve or disapprove of all plan amendments. DOE currently reviews and approves plan amendments against established benchmarks to prevent benefits from being out of line with those in comparable industries.

15. Senator ALLARD. Secretary Roberson, will these changes (especially in view of section 3161 of the National Defense Authorization Act for Fiscal Year 1993) encour-

age employees and retirees to look directly to DOE for these things, thus moving away from the Manhattan Project paradigm of the government's working through contractors in these matters?

Ms. ROBERSON. While Section 3161 of the National Defense Authorization Act for Fiscal Year 1993 directed DOE to mitigate the impact on contractor employees and their communities of the Department's changing mission, it did not alter the relationship between DOE and its prime contractor employees. DOE is consulting with the Department of Labor and the IRS regarding its approach to providing continuity of post-closure benefits. They have been consistent in their advice and counsel to have a DOE prime contractor(s) continue as a plan sponsor(s) and fiduciaries.

#### POST-CLOSURE OBLIGATIONS

16. Senator ALLARD. Secretary Roberson, the General Accounting Office is investigating the size and duration of DOE obligations for contractor post-retirement benefits after site closure. Proposed Cost Accounting Standard (CAS) 419, which would have regulated the allocation of costs for health benefits for government contractors, was recently withdrawn because of industry concerns about exposure to these costs, and a desire that the government bear more of the risk of rapidly increasing medical costs. What are your thoughts on this?

Ms. ROBERSON. Withdrawal of CAS 419 would not have a direct and/or immediate impact on DOE contracts due to current DOE policy that requires cash basis or pay-as-you-go accounting for post-retirement benefits (PRB) (other than pension plans).

The proposed CAS 419, Accounting for the Costs of Post-Retirement Benefit Plans Sponsored by Government Contractors, would have required accrual accounting for PRB plans when benefits meet the following criteria: (1) documented in writing, (2) communicated to employees, (3) non-forfeitable once earned, and (4) legally enforceable. DOE contractors' PRBs, like most commercially sponsored PRBs, meet some of these criteria, but may not meet all of the proposed CAS 419 criteria.

While pre-funding of PRBs may be desirable, the DOE contractor liability for post retirement benefits has been accruing for 50+ years. Converting to accrual accounting (pre-funded) from pay-as-you-go accounting would result in a significant transitional liability. Additionally, unlike pension plans, PRBs cannot be funded through tax favored funding vehicles.

17. Senator ALLARD. Secretary Roberson, when the main operational mission of the sites is completed and the great bulk of costs remaining are post-operational retiree benefits, what incentive is there for the contractors (who are working under various kinds of contracts which effectively provide for cost reimbursement) to control these costs?

Ms. ROBERSON. We believe the Department has tools available to it that it can use in developing appropriate contractual arrangements that will allow a significant measure of cost control. These include contract incentives to implement efficiencies in plan administration and reasonableness determinations with respect to the allowability of costs that can take into account relevant industry comparators (e.g., industry competition and geographical location) consistent with other applicable laws and rules.

#### TECHNOLOGIES AND INNOVATIONS

18. Senator ALLARD. Secretary Roberson, what is the EM program doing to encourage new cleanup technologies and innovations to help further accelerate cleanup at EM sites?

Ms. ROBERSON. Of fundamental importance are the cleanup contracts that provide strong financial incentives for contractors to bring the safest and most efficient technologies to bear on the site cleanup contracts. The progress at Rocky Flats is a result of such a contract change. The emerging success there issue not only to its project management approach but also to a great number of new and improved technologies. In addition, we fund selected activities to ensure the sites have the best available scientific and technological background and advice with which to proceed with the best, viable technical solutions and technologies.

19. Senator ALLARD. Secretary Roberson, does the EM program encourage new technologies to be introduced into the existing cleanup framework?

Ms. ROBERSON. Absolutely. We are doing this in two ways. First, we are creating strong incentives for contractors to bring the safest and most efficient technologies to bear on the site cleanup contracts. Second, we fund Technical Solutions, Closure

Projects, and Alternatives Projects within the Technology Development and Deployment program to ensure the sites have the best available scientific and technological background, advice, and confidence with which to proceed. These programs directly stimulate the use of the best, viable technical solutions and technologies.

20. Senator ALLARD. Secretary Roberson, how would a company or other entity introduce their new technology into the existing EM contractor framework?

Ms. ROBERSON. By far the greatest opportunity is through the sites and their site cleanup contractors who are searching for the best available solutions and who will be responsible for verifying that a vendor's claims are supported. In addition, as we pursue alternatives projects, procurements are advertised for commercial response. Companies and teams of companies are encouraged to submit their proposals.

21. Senator ALLARD. Secretary Roberson, how does the EM program assess whether a new technology may be a viable cleanup option?

Ms. ROBERSON. In most cases, the vendors present testing and field operational experience for DOE assessment and decisionmaking. Treatability studies and other technology demonstrations may be conducted to further support such assessments.

#### ACCELERATE RISK REDUCTION

22. Senator ALLARD. Secretary Roberson, in your written testimony you focus on the benefits of accelerating risk reduction as the best way to increase safety and reduce the cost of cleanup. Are there any statutory or regulatory obstacles preventing the EM program from accelerating risk reduction which should be changed to help increase safety and reduce the cost of cleanup?

Ms. ROBERSON. We have identified one statutory change that would be extremely important for proceeding with the accelerated cleanup program. This legislation would clarify the Department's authority to separate and dispose of tank waste according to the risk it presents. The Department submitted a legislative proposal on this subject last August and since then has been in discussion with the affected States and Congressional delegations to craft a consensus on a legislative solution. As you are aware, these efforts resulted in agreement with the State of South Carolina. We appreciate the State's agreement on a legislative approach, and we appreciate the committee's consideration of this approach with respect to the Savannah River Site in the National Defense Authorization Act for Fiscal Year 2005. Clarification of the Department's authority to classify waste remains critical to implementation of accelerated cleanup plans at Idaho, Hanford, and the Savannah River Site.

The Department has not identified any additional statutory changes it would recommend to execute accelerated cleanup. Nonetheless, the cleanup program continues to implement various initiatives (e.g., baseline validation reviews, acquisition strategies, and development of site Risk-Based End State documents) that may, at some point in the future, lead to identification of the need for additional statutory changes. Should these initiatives lead to identification of additional changes to support accelerated cleanup, the Department will make appropriate recommendations to Congress.

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#### QUESTIONS SUBMITTED BY SENATOR BILL NELSON

##### INTEGRATED TECHNOLOGY

23. Senator BILL NELSON. Secretary Roberson, with a program as complex as the EM program, it would seem that a reasonable investment should be made in improving the technologies and methods that will be utilized to accomplish this mission. Technology improvements can only be achieved through a technology program that is able to look to the future, rather than dealing with the day-to-day challenges of implementation. The DOE EM program has spent the last year implementing its accelerated cleanup program and is currently in the process of another reorganization to streamline its processes to provide better focus on its core mission and to reduce the risks imposed by the legacy of our nuclear weapons programs. In testimony provided to the Energy and Water Appropriations Subcommittee last year, you indicated that you had instituted an integrated technology development and deployment program to focus on "high-payoff" site closure and remediation problems. How does this integrated technology development and deployment program plan on focusing on the longer term research and development necessary to ensure that continual improvement is achieved as you embark on what you now assert is a 35-year mission to complete the EM cleanup objectives?

Ms. ROBERSON. In 2003, EM consolidated its basic and applied research activities with those in the Office of Science. Since 2003, for longer-term research and development, DOE's Office of Science is leading the way to yield the greatest benefit. To assist in clarifying these research needs, EM (and more recently the Office of Science) commissioned a series of reports conducted by the National Research Council. To date, the Council recommended additional research in subsurface contamination, high-level waste, facility deactivation and decontamination, I transuranic and mixed wastes, and DOE's excess nuclear materials and spent nuclear fuel. The Office of Science is using these recommendations as a basis for their research.

#### FLORIDA INTERNATIONAL UNIVERSITY

24. Senator BILL NELSON. Secretary Roberson, Florida International University (FIU) has been a fertile ground to seek solutions to long-term challenges. Would you agree that the support the EM program has received from academic institutions has significantly contributed to the development of the solutions that have allowed you to have be optimistic that EM will accelerate cleanup and closure of the many DOE sites and facilities?

Ms. ROBERSON. We have worked cooperatively with FIU to identify beneficial activities to support EM's technology needs. FIU technology activities support several DOE sites including Savannah River, Mound, Oak Ridge Rocky Flats, and Hanford as well as providing technical support to help solve EM complex-wide issues.

#### SUPPORT OF INSTITUTIONS TRYING TO SOLVE TECHNOLOGICAL CHALLENGES

25. Senator BILL NELSON. Secretary Roberson, will you continue to support the ongoing role of these institutions in assisting the Department solve the considerable technological challenges yet to be identified?

Ms. ROBERSON. The EM Office of Cleanup Technologies and DOE site offices will continue to work with these institutions to align their expertise, as appropriate, to address site specific or complex-wide technical issues that are challenging accelerated cleanup. Areas of technical support provided by these institutions include waste characterization and dissolution, instrumentation, decontamination and decommissioning, robotics, and university curriculum development.

#### BUDGET DECISIONS

26. Senator BILL NELSON. Secretary Roberson, the two largest cleanup programs with a 2006 site closure date are Rocky Flats, Colorado, and Fernald, Ohio. The DOE increased the Rocky Flats by \$21.7 million for fiscal year 2005. Fernald, on the other hand, was reduced. Why is the Fernald budget being cut this close to closure?

Ms. ROBERSON. The fiscal year 2004 budget for Fernald included increased funding for significant scope associated with Silos 1, 2, and 3. In fiscal year 2004, the construction of the Silos 1 and 2 treatment facility and the Silos 1, 2, and 3 retrieval facilities will be completed. Remediation of the Waste Pits will be completed before the end of fiscal year 2005. The funding requested for Fernald in fiscal year 2005 reflects the completion of these major activities and progress on the critical path. In addition, the request for safeguards and security funding has been reduced in fiscal year 2005 due to the progress in accelerated cleanup and reducing the site footprint.

27. Senator BILL NELSON. Secretary Roberson, other major budget losers include the Idaho National Engineering and Environmental Laboratory (INEEL), cut \$94 million, or 18.5 percent; Paducah, Kentucky, cut \$32 million, or 17.1 percent; and Savannah River Site, cut \$76 million, or 5.7 percent. At a time when DOE is trying to accelerate cleanup, why are funds being reduced for these sites?

Ms. ROBERSON. What appears to be decreases at the Savannah River Site and the INEEL in fiscal year 2005, results from the decision not to include funding associated with those activities impacted by the WIR court ruling in the site budgets, but rather to show that funding in a separate proposal. There is \$350 million in fiscal year 2005 for the planned activities to be performed should the legal issue be satisfactorily resolved.

The Paducah decreases in fiscal year 2005 are due to work completions in fiscal year 2004, i.e., the north/south diversion ditch project; the dismantling and removal of all piping and equipment from sectors 1 and 9 in building C-410; and preparation of sectors 2 and 3 for dismantling and piping equipment removal.

28. Senator BILL NELSON. Secretary Roberson, although informal estimates show that only a third of the DOE's EM budget goes for environmental restoration (i.e., cleanup), the DOE budget continues to lack a clear delineation between funds going to real cleanup and funds going toward waste management. Why doesn't the DOE separate environmental restoration and waste management in the budget?

Ms. ROBERSON. EM implemented a new budget structure in fiscal year 2004 to clearly distinguish the scope and resources that directly support EM's core accelerated cleanup and risk reduction mission versus those activities that indirectly relate to on-the-ground cleanup. It also distinguishes waste management activities, which are an integral part of EM's mission-related cleanup activities, from environmental restoration activities.

EM's new budget structure consolidates direct cleanup activities such as waste management and environmental restoration into predominately two appropriations—the Defense and Non-Defense Site Acceleration Completion. Over 80 percent of EM's fiscal year 2005 request (approximately \$6.1 billion of \$7.434 billion) is in these two mission-related cleanup appropriations.

To support the new budget structure, for the Defense and Non-Defense Site Acceleration Completion Appropriations, major mission-related cleanup activities are categorized at the lower-level project baseline summary (PBS) structure. Among the direct cleanup activities categorized are waste management activities (operation of waste disposal facilities, solid waste disposition, and radioactive liquid tank waste stabilization and disposition) and environmental restoration activities (soil and water remediation). With such a structure, the EM program is capable of "isolating" the costs associated with each major direct cleanup activity at each EM site.

29. Senator BILL NELSON. Secretary Roberson, you have always considered Rocky Flats to be the model for accelerated cleanup. However, the estimated life-cycle costs for cleanup of Rocky Flats have increased more than \$210 million in the past year. In addition, the fiscal year 2005 request indicates that accurate estimates of future costs for some major activities at Rocky Flats cannot be determined "until EM conducts the next life-cycle cost estimate." What will the life-cycle costs be at Rocky Flats?

Ms. ROBERSON. The increase in the life-cycle cost estimate for the Rocky Flats Site is due primarily to an increase in estimated post-closure contract liabilities such as pension and health care benefits, not an increase in cleanup costs. We are in the process of collecting updated life-cycle costs from our sites. We will be able to provide the updated life-cycle cost estimate for the Rocky Flats Site after September 30, 2004.

#### HIGH-LEVEL WASTE

30. Senator BILL NELSON. Secretary Roberson, the budget request includes a "high-level waste proposal" that would create a \$350 million contingency fund for high level waste tanks at Hanford, the INEEL, and Savannah River Site. Does DOE intend to stop all above ground waste treatment and handling work at these sites in the event that the litigation is not resolved?

Ms. ROBERSON. DOE believes it can proceed with above-ground treatment and stabilization of the waste from reprocessing that is intended to be disposed of in the Federal geologic repository for spent fuel under the District Court decision. However, it can be done only to the extent those actions are independent of plans with respect to the lower activity fraction of the waste slated for disposal elsewhere. Therefore, at Savannah River, DOE continues to transfer high-activity tank waste sludges to the Defense Waste Processing Facility, where these wastes are treated into a vitrified glass waste form for disposal as high-level waste. Similarly, at Hanford, DOE is constructing a Waste Treatment Plant that will separate tank wastes into a high-activity fraction (92.5 percent of the tank waste radioactivity) for vitrification into a glass waste form for geologic disposal as high-level waste.

DOE's plans for above-ground stabilization and treatment of lower-activity portions of the waste from reprocessing planned to be disposed as low-level or transuranic (TRU) waste have been jeopardized by a district court decision that invalidated the DOE order under which these decisions are made.

31. Senator BILL NELSON. Secretary Roberson, specifically what activities does the DOE believe it cannot do regarding cleanup and closure of the high-level waste tanks at Hanford, INEEL, and Savannah River Site, based on the recent court order?

Ms. ROBERSON. The activities are outlined on pages 291–292 of the DOE budget request for EM. In general, the activities involve either activities to complete operational closure of tanks at the three sites, which are predicated on classification of the residues as low-level waste, or activities involving removal, stabilization and disposal of non-residue waste in the tanks that DOE anticipated classifying as low-level or TRU waste.

If the Department were to proceed with these activities that depend on DOE being able to classify some tank waste as low-level or TRU waste, it would be making hundred-million-dollar-plus investments in facilities and technologies—with no confidence that it has the authority to classify the waste as it had planned to do, and hence no assurance that the waste form has a disposal pathway. The Department has concluded that it should only execute these cleanup actions if the appeals court overturns the lower court decision, or legislation from Congress affirms the Department's authority to classify these materials as low-level or TRU waste that is incidental to reprocessing.

32. Senator BILL NELSON. Secretary Roberson, how will the \$350 million high-level waste fund be divided among the sites presuming an agreement is reached between DOE, the litigants, and the States and regulators? Please provide a detailed breakdown by site by project.

Ms. ROBERSON. At this time, we anticipate the site-specific activities will include the following. However, these allocations may change depending on the exact nature of the resolution and the manner in which delays have affected project baselines.

Hanford (\$64.1 million, 2035 Accelerated Completions Account):

- Begin to retrieve and package wastes from 8 to 20 tanks for disposal as TRU waste at the Waste Isolation Pilot Plant.
- Pursue supplemental low-activity waste technologies to prepare that waste for disposal as low-level waste.
- Proceed with final stabilization of residues for tank closures.

Idaho (\$97.3 million, 2012 Accelerated Completions Account):

- Begin design of a facility to treat and stabilize the approximate 1 million gallons of liquid sodium-bearing wastes remaining in the Idaho tanks in order to dispose of it as TRU waste.
- Proceed with final stabilization of residues for tank closures.

Savannah River Site (\$188.6 million, 2035 Accelerated Completions Account):

- Initiate detailed design and construction of the Salt Waste Processing Facility (to separate certain tank wastes into high-activity and low-activity fractions for subsequent treatment and disposal).
- Proceed with an in-tank process to remove low-curie salt tank wastes for on-site disposal as low-level waste.
- Proceed with activities to separate actinides (some TRU isotopes and some strontium) from tank wastes, so that the actinides would be processed through the Defense Waste Processing Facility and disposed of as high-level waste and remaining as low-level waste.
- Grout residual tank waste for on-site disposal in the Saltstone vaults as low-level waste.
- Proceed with final stabilization of residues for tank closure.

#### ACCELERATED CLEANUP

33. Senator BILL NELSON. Secretary Roberson, the DOE was supposed to report to Congress within 60 days of enactment of the Fiscal Year 2004 Energy and Water Development Appropriations Act (i.e., by February 1, 2004) regarding proposed statutory changes for its “Accelerated Cleanup” program. When can we expect this report and what changes will DOE propose?

Ms. ROBERSON. I apologize for the tardiness of our response, but thank you for the opportunity to identify statutory changes critical to accelerated risk reduction, cleanup, and closure of Department sites. You should receive our formal response shortly.

We have identified one statutory change for the accelerated cleanup program that the Department formally recommended to Congress in August 2003. This legislation would clarify the Department's authority to separate and dispose of tank waste according to the risk it presents. The Department has been in discussion with the affected States and congressional delegations in an attempt to agree on a legislative solution. Clarification of the Department's authority to classify waste remains critical to implementation of accelerated cleanup plans at Idaho, Hanford, and the Sa-

vannah River Site. These discussions resulted in agreement with the State of South Carolina on a legislative approach, and we appreciate the committee's consideration of this approach with respect to the Savannah River Site in the National Defense Authorization Act for Fiscal Year 2005.

The Department has not identified any additional statutory changes needed to execute accelerated cleanup. However, the cleanup program continues to implement various initiatives (e.g., baseline validation reviews, acquisition strategies, and development of site Risk-Based End State documents) that may, at some point in the future, lead to identification of additional desirable statutory changes. Should these initiatives lead to identification of additional changes to support accelerated cleanup, the Department will inform Congress.

34. Senator BILL NELSON. Secretary Roberson, the Risk-Based End States (RBES) project is based on the premise that cleanup should focus on the risks to human health and safety, and protection of the environment consistent with the future use of the property. It appears that in some instances the level of cleanup may be less than the level previously agreed to under the various cleanup agreements with the States. Even before the site RBES vision statements were finalized, several State governments and EPA regional offices, including Ohio and California, weighed in with strong objections. How is DOE addressing the concerns of EPA and these States?

Ms. ROBERSON. Stakeholder involvement is an essential part of the RBES process. The RBES documents will remain drafts for quite a while until we believe that we have adequately and openly addressed any issues or concerns with the public and with the regulators. This does not overtake the regulatory process. It provides a visible basis for us and for the public to understand what we may propose in the process.

35. Senator BILL NELSON. Secretary Roberson, DOE is attempting an ambitious "Accelerated Cleanup" program while at the same time attempting to negotiate a transition of cleanup responsibilities away from EM to other offices, including a new LM, and while also restructuring the budget to create new accounts for funding cleanup and waste management. What comments and concerns has DOE received from stakeholders about these initiatives and about how they will be implemented?

Ms. ROBERSON. Stakeholder comments about these initiatives and how they will be implemented are generally supportive. There have been, however, some specific concerns expressed. The transition of certain activities from the EM office to other offices has been praised for bringing better organization and efficiency to the cleanup effort. Concerns have centered on the necessity of working with a number of different DOE offices rather than a single EM entity. Stakeholders, regulators, and local government officials have also expressed concern that after years of developing a close working relationship on numerous levels with EM, they will have to begin the process all over with a number of different offices. The ability of EM and other offices that share responsibilities to act in a coordinated manner so as to avoid confusion and having important actions "fall through the cracks" is another issue of concern.

The restructuring of the budget to create new accounts has met widespread support from interested parties. Stakeholders generally feel that the changes have brought about greater transparency and accountability and have resulted in a budget that is much easier for a layperson to follow. The concerns expressed have centered on the usual issues of funding sufficiency and certainty.

#### OFFICE OF LEGACY MANAGEMENT

36. Senator BILL NELSON. Mr. Owen, DOE's Weldon Springs site in Missouri is one of the first sites to be transferred to LM. DOE and the State of Missouri signed an agreement to provide funding for monitoring agreements. DOE has since withdrawn support for the agreement. Many more sites are planned to be transferred to LM. Will DOE reinstate funds for monitoring agreements for States and communities?

Mr. OWEN. LM is responsible for over 60 sites across the country; one of these is the Weldon Spring Site in St. Charles County, Missouri. Since 1993, DOE has provided over \$5,000,000, through a grant, to the State of Missouri for its participation in the remediation of the Weldon Spring Site. DOE continues to provide funding to the State through the existing grant but has reduced the level of funding from an average of \$450,000 per year to \$65,000 in 2004. We believe this is an appropriate amount for the State's workload in 2004. This reduction is commensurate

with the overall reduction in work at the site from over \$60,000,000 per year in active remediation to roughly \$1,000,000 a year focused on surveillance and maintenance. In addition, DOE continues to fund the Weldon Spring Citizens Commission as an integral component of our public participation efforts and St. Charles County to perform independent monitoring of ground water.

LM expects to assume responsibility for an additional 45 sites over the next 5 years. DOE intends to continue to compensate affected State and local governments for work that is required to ensure the protection of human health and the environment at our sites.

37. Senator BILL NELSON. Mr. Owen, what is the current status of the claims under the Energy Employees Occupational Illness Compensation Program Act?

Mr. OWEN. As of September 3, 2004, the DOE has effectively completed its work on 8,197—data acquisition from DOE sites and case processing. This number includes 3,755 completed/closed cases—applicants have either received a determination or their cases were closed for lack of eligibility or the applicant withdrew. In addition another 14,971 cases are currently being developed. Lastly, 2,213 cases are in the queue awaiting development.

38. Senator BILL NELSON. Mr. Owen, how do those numbers compare to fiscal year 2003 and fiscal year 2002?

Mr. OWEN. The Department's Physician Panel rule governing the programs procedures became effective on September 13, 2002. At this point the Department began processing cases, but by the end of fiscal year 2002, no cases had gone through the Physician Panel determination process. At the end of fiscal year 2002, the Department had received approximately 12,000 cases. While the Department began processing cases immediately after the rule became effective, the first few months after the rule became effective, the program office spent the majority of its resources setting up the program (establishing procedures, developing processes, hiring contractors and staff, etc.).

39. Senator BILL NELSON. Mr. Owen, what remedies is DOE looking at to improve the situation for the "Cold War" veterans?

Mr. OWEN. For the past 10 years, the Department has assisted and continues to assist "Cold War" contractor employees by providing benefits consistent with section 3161 of the National Defense Authorization Act for Fiscal Year 1993. The focus of the program when it began about 10 years ago was to assist individuals whose careers were dedicated to weapons production. The majority of those individuals have now retired. LM is now also responsible for oversight of benefit continuity for contractor employees at site closure. The Department believes that there are progressive benefit programs in place to address the needs of contractor employees at site closure, some of whom are "Cold War" employees, and carefully reviews those programs.

40. Senator BILL NELSON. Mr. Owen, the risk based end states draft headquarters documents reference a modification process for changing the site end states in the future. The modification process is not specified in those documents. Once the sites are transferred, are there provisions for modifying the site end states within LM?

Mr. OWEN. LM is working closely with the EM office in the development and review of the RBES documents. LM conducts annual inspections at sites where we are required to perform long-term surveillance and maintenance. One component of that annual inspection is to evaluate potential future changes in the use of the site and/or the surrounding area. A decision to change a site's land use would be dependent on the relevant land use controls and appropriate consultation with the affected Federal, State, local, and tribal governments and/or adjacent landowners.

[Whereupon, at 4:00 p.m., the subcommittee adjourned.]





**DEPARTMENT OF DEFENSE AUTHORIZATION  
FOR APPROPRIATIONS FOR FISCAL YEAR  
2005**

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**WEDNESDAY, MARCH 24, 2004**

U.S. SENATE,  
SUBCOMMITTEE ON STRATEGIC FORCES,  
COMMITTEE ON ARMED SERVICES,  
*Washington, DC.*

**STRATEGIC FORCES AND CAPABILITIES**

The subcommittee met, pursuant to notice, at 9:32 a.m., in room SR-222, Russell Senate Office Building, Senator Wayne Allard (chairman of the subcommittee) presiding.

Committee members present: Senators Allard, Cornyn, and Bill Nelson.

Majority staff member present: L. David Cherington, counsel.

Minority staff member present: Madelyn R. Creedon, minority counsel.

Staff assistants present: Michael N. Berger, Bridget E. Ward, and Nicholas W. West.

Committee members' assistants present: Jayson Roehl, assistant to Senator Allard; Russell J. Thomasson, assistant to Senator Cornyn; and William K. Sutey, assistant to Senator Bill Nelson.

**OPENING STATEMENT OF SENATOR WAYNE ALLARD,  
CHAIRMAN**

Senator ALLARD. I am going to call the Strategic Forces Subcommittee hearing to order here. I am going to go ahead and make an opening statement. My hope is by the time I finish my opening statement, we will have some minority members here, then we can go ahead with testimony. We will maybe give Senator Cornyn an opportunity to make an opening statement, if he would like.

This hearing will come to order. I want to welcome all of you here. I am pleased to welcome our witnesses today: Administrator of the National Nuclear Security Administration (NNSA) and Under Secretary of Energy Linton F. Brooks, and Admiral James O. Ellis, Jr., Commander, U.S. Strategic Command (STRATCOM).

Gentlemen, I thank you both for your service to our Nation and for taking the time and effort to join us here today.

We are here to receive testimony on U.S. strategic forces and capabilities. I would venture an informed guess that no command in the U.S. military has gone through more changes than STRATCOM over the last couple of years. These changes reflect the rapid evo-

lution of the international security environment, the merger of Space Command and Strategic Command, and previously unassigned new missions now assigned to STRATCOM.

There is no more important task for this subcommittee than to exercise its oversight functions with respect to U.S. nuclear forces. Nuclear weapons remain the most awesome tool in our arsenal. I cannot foresee any circumstances in which nuclear weapons will cease to play a central role in our deterrence posture. The safety, security, reliability, and effectiveness of these weapons remains paramount.

The Department of Defense (DOD) concluded in its 2001 Nuclear Posture Review (NPR) that a new, more flexible, adaptive strategic triad was needed to deal with new threats. These threats are uncertain to their origins, but certainly quite different than those posed in the Cold War. Rather than rely exclusively on a nuclear triad of land, sea-based intercontinental ballistic missiles (ICBMs), and long-range bombers to deter a single adversary, the NPR outlined a new triad consisting of offensive strike forces, both nuclear and non-nuclear, defensive systems, both active and passive, and an infrastructure capable of supporting these systems. These are all supported by robust command, control, and intelligence capabilities.

The purpose of these capabilities is not simply to deter, but to assure our allies and to dissuade, deter and, if necessary, defeat our adversaries. The new missions assigned to STRATCOM reflect these new strategic realities with which we must deal. Strategic does not equate to nuclear anymore. Strategic could mean an information operation to disable an adversary command and control network. Strategic could mean a conventional munition delivered precisely on a weapons of mass destruction (WMD) target, targets that once could easily be defeated with nuclear weapons are now or will be held at risk with non-nuclear systems.

I believe that these new options raise the nuclear threshold higher than it has ever been. I am aware that much work is already being done. Studies are proceeding on the new shape of Global Strike. One purpose of this hearing is to more fully explore the full range of strategic capabilities the Nation needs to achieve prompt, decisive results, when required, and to understand the scope of the programs that support these capabilities.

None of this is to say that defenses and advanced non-nuclear weapons and delivery systems can deter or defeat the entire range of threats. Our legacy nuclear weapons and delivery systems will remain important to hold certain targets at risk and for no other reason than their enormous destructive power remains a powerful deterrent.

There are no new nuclear weapons initiatives in the budget request for fiscal year 2005. Over the last 2 years, we have also debated whether advanced nuclear concepts may contribute to our ability to hold at risk emerging threats. In both the fiscal year 2003 and fiscal year 2004 requests, the Department of Energy (DOE) requested funding or legislation for several nuclear weapons initiatives, including the feasibility study on the Robust Nuclear Earth Penetrator (RNEP) and Advanced Concepts Initiative research.

As a result of these debates, I believe we were able to put some safety checks in place which will allow research and feasibility studies to continue while still allowing Congress the final say on more advanced development. It is my view that we found a good balance between nuclear weapons research and studies versus engineering development in subsequent phases.

A series of recent reports, including the NPR, to Congress by the panel to assess the reliability, safety, and security of the United States nuclear stockpile, known as the Foster Panel reports, and the report of the commission on maintaining the United States nuclear weapons expertise, known as the Chiles Report, pointed out the importance of sustaining key parts of the third leg of the new triad, the nuclear weapons infrastructure and expertise in the nuclear weapons program.

The advanced concepts initiative provides a new outlook to ensure our weapons scientists, engineers, and technicians have opportunities to conduct research and studies to ensure that they are able to maintain their skills and the abilities to respond to military requirements sent or to be sent from the DOD.

The feasibility study on the RNEP is an example of an advanced concept which seeks to meet a specific military requirement of the DOD. There could be a variety of advanced concepts which address reliability, safety, or security issues, and ensure our weapons labs and plants are ready to deliver is paramount to our Nation's nuclear weapons program.

The balance we achieve is in the requirement that should the decision be taken to move beyond research for feasibility studies for the RNEP or low-yield nuclear weapons, the administration must first receive a specific authorization from Congress. This will keep Congress informed of these latter phases of nuclear weapons development and will provide ample opportunity for a vigorous debate on these issues to occur at that time.

We do not want our nuclear weapons scientists to be afraid to think for fear of breaking the law. We should let our scientists think about the science of nuclear weapons. We should let the policy makers of both the administration and Congress decide, based on accepted facts established by solid research, whether we should proceed forward with new or modified nuclear weapons.

There are several other issues that I believe we need to explore in some depth in this hearing. Several projects key to the success of the Science-Based Stockpile Stewardship Program are struggling for a variety of reasons. These include the National Ignition Facility, the Modern Pit Facility, and the Mixed Oxide (MOX) Facility.

Safeguards and security, especially the new design basis threat requirements, remain a significant concern. I am still not satisfied that NNSA has provided enough transparency in its budget to request for Readiness in Technical Base and Facilities (RTBF). In my view, we cannot afford to defer maintenance until we end up with a dilapidated and potentially dangerous nuclear weapons complex.

I believe that the development and construction of modern facilities, the research encouraged by the Advanced Concepts Initiative, and maintaining the infrastructure across the NNSA complex are seed corn for the future of our nuclear deterrent forces.

Ambassador Brooks, I hope that during your testimony and the question period we can get a better assessment of how NNSA is addressing challenges in each of these areas.

Now I would like to recognize other members of the committee that are here. I will start with my good friend from Texas, Senator Cornyn.

Senator CORNYN. Thank you, Mr. Chairman. I guess that was an easy choice, given the conflicts that I know members have with other committee meetings. Indeed, I am going to have to leave here momentarily, but I did want to say to the Ambassador and Admiral, thank you for being here this morning to talk about this very important subject. We certainly do not want the occasion to pass without thanking you again for your service to our country.

As we transform our country's defense and meet new and emerging threats, you both play a critical role in redefining and reshaping our nuclear security and strategic forces for the 21st century. I believe that I would adopt everything that Chairman Allard has said about the importance of that issue, particularly when it comes to developing responsive nuclear weapons infrastructure.

That is, in many ways, as important as strike forces in meeting our defense objectives. The capabilities of the defense, technical, and manufacturing infrastructure provide the ability to quickly respond to new or emerging threats. I believe that, Ambassador Brooks, in your statement you pointed out that physically restoring the capability to produce plutonium pits in sufficient quantities will be essential to responsive nuclear weapons infrastructure. Chairman Allard made the same reference.

The Modern Pit Facility or Pit Rework Facility will support the pit remanufacturing needs of the entire stockpile. This capability is important, even if we never produce another nuclear, another new weapon. I strongly support the building of a Modern Pit Facility and encourage members to fully fund this effort.

With that, I would say once again thank you very much for being here and look forward to reading your testimony.

I will have to leave, Mr. Chairman, for another committee meeting, but thank you for conducting this important hearing.

Senator ALLARD. Well, thank you, Senator Cornyn, for being here. You are an active player on this committee, and it is a delight to have you on this subcommittee. The ranking member, Senator Nelson, will be here shortly, I am told. What I thought we would do is we will proceed with the testimony from the panel. Then when he arrives, we will give him an opportunity to make his opening statement.

So which of you would like to go first? Ambassador Brooks.

#### **STATEMENT OF AMBASSADOR LINTON F. BROOKS, ADMINISTRATOR, NATIONAL NUCLEAR SECURITY ADMINISTRATION**

Ambassador BROOKS. Thanks, sir, and thank you for the opportunity to talk about the administration's views on nuclear policy. I am especially pleased to be joined by Admiral Ellis, who is a friend and colleague of long standing. He will be speaking from the military perspective.

I have submitted a written statement and would like, with your permission, to summarize it at this time.

Senator ALLARD. Without objection, both of your full statements will be made a part of the record.

Ambassador BROOKS. In May 2001, President Bush spoke at the National Defense University (NDU), and he articulated his vision for nuclear weapons. "Nuclear weapons still have a vital role to play in our security and that of our allies. I am committed to achieving a credible deterrent with the lowest possible number of nuclear weapons, consistent with our national security needs."

The President in that statement and elsewhere recognized that a full decade after the Cold War, it was time to do a fundamental reexamination of the post-Cold War role of nuclear weapons. The results of that examination were codified in the December 2001 NPR, which is setting the direction for our nuclear forces for the next decade and beyond.

That review reaffirmed that nuclear weapons remain crucial, but consistent with the change in the international environment, it also represented a radical departure from the past. It was, in my view, the most fundamental rethinking of the roles and purposes of nuclear weapons in the quarter century.

Among the many changes in the NPR, three seem to me to be particularly important. Instead of focusing on deterring the nuclear threat posed by a single specific enemy, as we did during the Cold War, it established the need for a capabilities-based force to accomplish four distinct policy goals.

Second, instead of treating nuclear weapons in isolation, it considered them as an integrated component of American military power, allowing us to use other means to achieve objectives that previously could only have been addressed with nuclear weapons.

Third, and perhaps most important, instead of treating the future as static and predictable, it recognized requirements could change and U.S. nuclear forces must be prepared to respond to those changes.

Under this new thinking, our nuclear forces serve four goals. First, to assure allies of our commitment to them and our ability to make good on that commitment. The implications of this goal are that our forces have to be effective. They have to be reliable and they have to be seen that way by our allies. Assurance serves our nonproliferation objectives, because those allies with the capability to develop nuclear weapons for themselves do not need to because they have confidence in the continued reliability of the U.S. nuclear umbrella.

Second, our nuclear forces serve to dissuade potential adversaries from trying to match our capabilities. That means that we need a combination of forces and infrastructures so that no potential power can have any hope of matching our capability and thus will be dissuaded from trying.

Third, our nuclear forces have to fulfill their traditional role of deterring threats. That implies an ability to hold at risk those elements of power that a potential adversary values.

Finally, the NPR called for forces capable of defending and defeating those threats that for whatever reason could not be deterred.

Those first two policy goals help determine the size of our force. The second two policy goals help determine the nature of those forces.

As you said in your opening statement, Mr. Chairman, if Admiral Ellis and I had appeared before you a few years ago, we would have spoken of a triad. We would have spoken of ICBMs and submarine-launched ballistic missiles (SLBMs) and bombers and how they work together. The NPR broadens that concept to a new triad of strike capabilities, both nuclear and non-nuclear, active and passive defenses, especially ballistic missile defense (BMD), research and development (R&D), and an industrial infrastructure.

Now, there have been some press reports that the new triad in the NPR somehow increased reliance on nuclear forces. That is not true. In fact, they continued the trend of the past decade toward a reduced reliance. By having a new emphasis on BMD, we are no longer as dependent on offensive strike to enforce deterrence. By strengthening non-nuclear strike forces, we are no longer as dependent on nuclear weapons for the offensive component of deterrence.

Our new approach was coupled with a judgment that we no longer need to plan as if Russia represented an immediate threat. That was the basis for the dramatic reduction in deployed forces codified in the Moscow Treaty. Over the next 8 years, the United States will reduce deployed warheads by about two-thirds from today's level.

The experience of the last decade and a half and our difficulty in predicting the future make it unwise for us to base our security on false assumptions that we can predict the future. Thus, while we reduce our deployed weapons, we have to plan against an uncertain future. Specifically, we have to be ready to respond to both unforeseen technical problems and unanticipated geopolitical changes.

One part of that response is a non-deployed stockpile. As part of its plan to implement the NPR, the administration is assessing the long-term requirements for non-deployed weapons. Congress has requested it be provided with the results of that assessment in a revised stockpile plan. We are working to complete that task as soon as possible. While we regret the delay in submitting the plan, the importance of nuclear weapons to our security makes it imperative to conduct a thorough review.

Now, I am not able to provide specifics, and I could not do so in an unclassified forum in any case, but let me give you some of the considerations involved in such a review.

The 2012 nuclear stockpile will be substantially reduced from current levels. The reductions will not lower the stockpile to the 1,700 to 2,200 weapons called for in the Moscow Treaty. We will always need additional weapons beyond those that are deployed for logistics spares and to conduct surveillance testing.

In addition, we will need warheads to meet our commitments to our allies. We will maintain a small number of warheads for U.S. nonstrategic nuclear forces. Finally, we will retain warheads over and above those deployed as a hedge against geopolitical and technical risk so that we can augment the operationally-deployed force in the event that world events require. We will also need to pre-

serve diversity in our force so that a problem in one system does to result in a major degradation in our capability.

One of the many new concepts in the NPR, and the most important for me personally, is the idea of a robust industrial base—what we are coming to call a responsive nuclear weapons infrastructure—is as important as strike forces or defenses in achieving our long-term defense goals.

Defense scientific, technical, and manufacturing infrastructure must provide us the means to respond to new challenges. If we can do this, if we can produce new or replacement warheads on a short time scale, if we can respond to technical surprise, then we can go much further in reducing the stockpile we have to maintain on hand.

In my written testimony, I discuss in some detail the characteristics of a responsive infrastructure. I would like to highlight only one area right now, and that is underground nuclear test readiness. I need to make it very clear, as the President has made it very clear, that we have no plans to resume testing. Our efforts to improve test readiness are a hedge against the possibility of a problem arising that cannot be confirmed or a fix certified without a test. Our goal is to achieve the 18-month test readiness posture called for in the Defense Authorization Act. That is an appropriate time, because it represents a typical time to diagnose a problem, design a test, confirm the problem, and certify a fix.

A responsive infrastructure has both an intellectual and a physical dimension. Intellectually, our proposals to examine advanced concepts will help train scientists and engineers who have to provide the design underpinning for the infrastructure of the future. Physically, as you mentioned in your opening statement, one of the most important steps is restoring a capability to produce plutonium pits.

The Modern Pit Facility (MPF), or what I am coming to call more accurately the Pit Rework Facility, will support the remanufacturing needs of the stockpile. As you said in your statement and Senator Cornyn said, we need this facility even if the United States never produces another new weapon. All existing plutonium pits will ultimately need to be rebuilt due to aging effects caused by radioactive decay.

Let me turn to two particularly contentious elements of the administration's budget request and describe how they relate to the principles we have been discussing. In 2005 we propose to continue a modest research effort on the Advanced Concepts Initiative and to continue the RNEP feasibility and cost study. There has been a lot of discussion of these two programs. So I want to review them in some detail.

We intend to use Advanced Concepts funds to investigate new ideas, not necessarily new weapons. For example, we are beginning a study examining the feasibility of adapting an existing nuclear warhead to provide a cruise missile capability that has enhanced safety and use control. We are looking at the feasibility of improving warhead design margins so that we can have continued high confidence as we get farther away from nuclear testing. We are in discussion with the Air Force about examining the utility of nu-



clear weapons to destroy chemical and biological agents, although we have made no decisions on that.

Perhaps the single most controversial request in our budget is continued funding for the RNEP. This study is to determine whether an existing nuclear warhead, either the B-61 bomb or the B-83 bomb, could be adapted without nuclear testing to improve our ability to hold at risk hard and deeply buried targets.

I want to correct some misconceptions. There is a clear military utility to this weapon. It has been recognized for almost a decade. That is why the DOD asked for it to be studied. The DOD submitted a classified report to this committee last year, which remains valid and provides some additional details inappropriate for this session.

Second, despite this utility, we are only going to move beyond the study stage if the President approves it and if the funds are authorized and appropriated by Congress. We included funds in our out-year projections only to preserve the President's option. There will be no decision until the study is completed. The law is very clear, the beginning development engineering will require specific congressional approval.

Finally, even if the study proves that the weapon is feasible, the President decides to proceed with it, and Congress agrees with that decision, this weapon would not change the policy goal of deterrence. Deterrence requires that we be able to hold at risk things that an adversary values. In our effort to determine the effectiveness of this earth penetrating weapon, it reflects not a change in deterrence, but a continued emphasis on it. Once again, I refer you to the classified reports submitted last year.

I would like to conclude by addressing three misconceptions raised both by Members of Congress and by others about our efforts. First, there is the suggestion that you referred to in your opening statement that we sought repeal of the prohibition on low-yield warhead development in order to develop and field new, low-yield nuclear weapons.

Second, there is the perception that in doing so we are going to blur the distinction between nuclear and conventional weapons and make nuclear use more likely.

Finally, there is a perception that nuclear weapons R&D will undercut our nonproliferation efforts. All three of those perceptions are wrong. Press accounts have spoken of administration plans to develop new low-yield weapons, but there are no such plans. Such warhead concepts could not in any case proceed to full-scale development, much less production, unless Congress authorizes and appropriates the funds.

The repeal of the prohibition on low-yield warhead development simply removed the chilling effect on our ability to think, because somehow those thoughts "could lead to" designs of less than five kilotons.

None of our efforts are blurring the distinction between conventional and nuclear weapons or making nuclear use more likely. The U.S. stockpile has had warheads capable of producing very low-yields for decades. At the height of the Cold War, thousands of these warheads were deployed. The simple possession of these weapons never made nuclear use by the United States more likely,

even in regional confrontations where their use might not have provoked a Soviet response. Only the President can authorize use of nuclear weapons. No President would employ any nuclear weapon of any yield except in the gravest of circumstances. The nuclear threshold for the United States has been, is, and always will be high.

Finally, our major nonproliferation objective is to prevent rogue states and terrorists from acquiring WMD. Neither the Advanced Concept Initiative efforts nor studies of earth-penetrating weapons will increase incentives for terrorists to acquire such weapons. Those incentives are already high. Our efforts are not likely to have any impact on rogue states, whose proliferation activities appear independent of U.S. nuclear programs.

Over the past decade, we have seen significant cuts in the number of U.S. weapons. We have taken weapons off alert. We have ended nuclear testing. We have ended weapons production. There is no evidence that that had any effect whatsoever on the behavior of the North Koreans or the Iranians of the world.

Further, for more responsible states, our efforts are also not going to hurt nonproliferation. Once again, we have an example. The same weapon that I am trying to see if I can get to penetrate into rock we decided to have penetrate into frozen soil in the mid-1990s. That decision was taken just before the last review conferences of the Nonproliferation Treaty (NPT) and appears to have had no impact on the success of the world's reaffirmation of nonproliferation norms.

Mr. Chairman, the United States is going to continue to lead the way to a safer world through deep reductions in nuclear forces, through Nunn-Lugar and Cooperative Threat Reduction (CTR) efforts. But we will have to continue to maintain an effective, reliable, and capable nuclear force as a hedge against an uncertain future.

Our efforts to reduce the stockpile to the minimum consistent with national security, to address options for stockpile transformation, and to restore a responsive nuclear weapons infrastructure are key elements of the administration's national security strategy. Carrying these out is in the national interest and poses no risk to our nonproliferation objectives.

This concludes my statement, sir. After you have heard from Admiral Ellis, I look forward to your questions.

[The prepared statement of Ambassador Brooks follows:]

#### PREPARED STATEMENT BY AMBASSADOR LINTON F. BROOKS

Mr. Chairman, thank you for the opportunity to appear before you today to discuss the administration's views on nuclear policy, U.S. nuclear forces, the nuclear weapons stockpile to support those forces, and ongoing work on implementing the 2001 Nuclear Posture Review (NPR). I also want to thank all of the members for their strong support for our critical national security activities. Before I begin my remarks, I would like to say how pleased I am to be on this panel today with my friend and colleague, Admiral James Ellis, Commander of the United States Strategic Command (STRATCOM), who will present the military perspective on the same issues.

#### OVERVIEW OF THE NUCLEAR POSTURE REVIEW

Since before he took office, President Bush has been committed to achieving a credible deterrent with the lowest number of nuclear weapons consistent with cur-

rent and future national security requirements. On May 1, 2001, at the National Defense University (NDU), he articulated his vision:

Nuclear weapons still have a vital role to play in our security and that of our allies. We can, and will, change the size, the composition, the character of our nuclear forces in a way that reflects the reality that the Cold War is over. I am committed to achieving a credible deterrent with the lowest-possible number of nuclear weapons consistent with our national security needs, including our obligations to our allies. My goal is to move quickly to reduce nuclear forces. The United States will lead by example to achieve our interests and the interests for peace in the world.

The President recognized clearly that, almost a decade after the collapse of the Soviet Union, it was time to conduct a fundamental examination of the role of nuclear weapons in the post-Cold War world. The results of that reexamination were described in the December 2001 NPR. The purpose of that review was to set forth the direction for American nuclear forces over the next decade and beyond. Let me highlight some key points about the review.

The NPR reassessed the role of nuclear forces and their contribution toward meeting defense policy goals. It reaffirmed that nuclear weapons, for the foreseeable future, will remain a crucial element of U.S. national security strategy. But, consistent with the changed international environment, the NPR represented a radical departure from the past and the most fundamental re-thinking of the roles and purposes of nuclear weapons in almost a quarter-century. Among the many changes, three are the most important:

- Instead of focusing on deterring the nuclear threat posed by a single, specific enemy, as in the Cold War, it established the need for a capabilities-based force to accomplish four distinct defense policy goals.
- Instead of treating nuclear weapons in isolation, it considered them as an integrated component of American military power, thus allowing us to achieve national security objectives through other means that previously could only have been addressed with nuclear weapons.
- Instead of treating the future as static and predictable, it recognized that requirements could change and that U.S. nuclear forces must be prepared to respond to those changes, including by increasing the fraction of the force that is deployed.

Let me discuss each of these in turn.

#### THE POLICY GOALS OF U.S. NUCLEAR FORCES

Under the new thinking of the NPR, our nuclear forces serve four goals:

- To assure allies of our commitment to them and our ability to make good on that commitment. The implications of this goal are that forces must be effective and reliable. Assurance serves our non-proliferation objectives because those allies with the capability to develop nuclear weapons can continue to forego doing so, safe in the knowledge of the reliability of the U.S. nuclear umbrella.
- To dissuade potential adversaries from trying to match our capabilities or from engaging in strategic competition. This requires that we maintain a combination of forces and infrastructure so that no potential power can have any hope of matching our capability and will be dissuaded from attempting to do so.
- To deter any threats that do emerge. This implies an ability to hold at risk those elements of power that a potential adversary values. I will say more on this point in a moment.
- To defend against and defeat those threats that, for whatever reason, we do not deter.

The first two policy goals help determine the size of our nuclear forces, while the second two govern the nature of those forces. As the committee will readily see, these goals are, in a sense, the goals of our entire military. That is why Admiral Ellis often says that we should, perhaps, refer to the NPR more generally as a Strategic Posture Review.

#### THE NEW TRIAD

Had Admiral Ellis and I appeared before you a few years ago, we would have spoken of a “triad” of strategic nuclear forces. This triad included bombers, intercontinental ballistic missiles (ICBMs), and submarine launched ballistic missiles (SLBMs), each with unique strengths that operated synergistically to ensure our

ability to retaliate under any condition of war initiation. The NPR broadens our thinking to encompass a new triad of flexible response capabilities consisting of:

- Non-nuclear and nuclear strike capabilities including systems for command and control,
- Active and passive defenses including ballistic missile defenses (BMD),
- Research and development (R&D) and industrial infrastructure needed to develop, build, and maintain nuclear offensive forces and defensive systems.

To provide a practical means to implement this new, integrated approach, the President established a new STRATCOM, with responsibility for Global Strike—both nuclear and non-nuclear—and for integrating missile defenses with offenses.

Contrary to some press reports, this new triad—and the NPR generally—continued the trend of the past decade towards a reduced reliance on nuclear forces in U.S. national security strategy. The new emphasis on BMD means that the U.S. will no longer be as heavily dependent on offensive strike forces to enforce deterrence as it was during the Cold War. The strengthening of non-nuclear strike forces—including precision conventional strike and information operations—means that the U.S. will be less dependent than it has been in the past on nuclear forces to provide offensive deterrent capabilities.

#### PRESENT AND FUTURE NUCLEAR STOCKPILES

Our new approach, coupled with the judgment that we no longer need to plan our forces as if Russia presented an immediate threat to the United States, was the basis for dramatic reductions—codified in the Moscow Treaty—in operationally-deployed strategic nuclear forces. Over the next 8 years, the United States will cut the number of deployed warheads by approximately two-thirds from today's level. But the experience of the past decade and a half makes it clear that it is unwise for us to base our security on the false belief that we can predict the future. Thus, while dramatically reducing the number of deployed weapons, we must plan against an uncertain future.

Specifically, the United States needs to be prepared to respond to both unforeseen technical problems and unanticipated geopolitical change. One element of such a response is a responsive infrastructure, which I will discuss in a moment. But another component of such a response is the non-deployed stockpile. As part of its plan to implement the NPR, the administration is conducting an assessment that, when completed, will clarify the long-term requirements for non-deployed weapons. Congress requested such a revised stockpile plan as well. The administration is working to complete this complex task as soon as possible. While we regret the delay, the importance of nuclear weapons to our security makes it imperative to conduct a thorough review.

While I am not prepared to provide specifics—and could not do so in an unclassified forum in any case—I can provide some of the considerations factoring into the review. The 2012 nuclear stockpile will be substantially reduced from current levels. But reductions will not lower the stockpile to 1,700–2,200 total warheads. Additional warheads over and above the operationally-deployed strategic warheads will be needed for routine maintenance of the stockpile including as logistics spares and to replace those warheads eliminated during destructive surveillance testing.

In addition, a small number of warheads (reduced by 90 percent from Cold War levels) for U.S. non-strategic nuclear forces will be retained, among other things, to meet commitments to allies.

Finally, warheads over and above the operationally-deployed force will be retained over the near term for prudent risk management in connection with mitigating geopolitical and technical risks. In particular, sufficient warheads will be retained to augment the operationally-deployed force in the event that world events require a more robust deterrence posture.

We also must preserve diversity of warhead types in the overall stockpile in order to mitigate technical risks. Although we are making progress in restoring a responsive nuclear weapons production infrastructure, we are not yet able to produce replacement warheads in sufficient quantity to respond if a technical problem called into question the safety or reliability of one or more warheads critical to our Nation's deterrent. Thus, for example, we are planning to deploy two types of ICBM warheads—the W87 and W78—and will retain sufficient numbers of these two types in reserve so that if a technical failure occurred in one type, there would be sufficient warheads of the other type to restore the operationally-deployed ICBM force. We seek to apply this approach, where appropriate, to other nuclear delivery means.

## RESPONSIVE NUCLEAR WEAPONS INFRASTRUCTURE

Of the many new concepts in the NPR, one of the most important is formal recognition that a robust defense R&D and industrial base—a key element of which is a responsive nuclear weapons infrastructure—is as important as strike forces or defenses in achieving our overall defense goals. The demonstrated capabilities of the defense scientific, technical, and manufacturing infrastructure, including its ability to sustain and adapt, provides the U.S. with the means to respond to new, unexpected, or emerging threats in a timely manner.

If we can employ this infrastructure to produce new or replacement warheads on a timescale in which geopolitical threats could emerge, or in response to stockpile “surprise”, then we can go much further in reducing the standing stockpile and meet the President’s vision of the smallest stockpile consistent with our Nation’s security.

By “responsive” we refer to the resilience of the nuclear weapons enterprise to unanticipated events or emerging threats, and the ability to anticipate innovations by an adversary and to counter them before our deterrent is degraded—all the while continuing to carry out the day-to-day activities in support of the stockpile. Unanticipated events could include complete failure of a deployed warhead type. Emerging threats could call for new or modified warhead development, or for providing additional warheads for force augmentation.

A key measure of “responsiveness” is how long it would take to carry out certain activities to address stockpile “surprise” or deal with new or emerging threats. Specific goals have been established for several activities; our progress towards meeting them is an important measure of the success of our program:

- Fix stockpile problems: The ability to assess a stockpile problem, once one has been identified, and then design, develop, implement, and certify a fix will depend on the nature and scope of the problem. For a relatively minor problem, our goal is to be able to deploy warheads modified to overcome the problem within 1 year.
- Adapt weapons: Our goal is to achieve a capability to modify or repackage existing warheads within 18 months of a decision to enter engineering development. I note that under current law such a step would require congressional approval.
- New warhead design, development, and initial production: Our goal is to be able to design, develop, and begin production of a new warhead within 3–4 years of a decision to enter engineering development. Among other things this capability is critical to reduce reliance on warheads that are beyond their life expectancies. Once again, congressional approval would be required. While there are no current plans to develop new weapons, maintaining the capability is an important pre-requisite to extensive reductions.
- Quantity production of new warheads: Our goal is to maintain sufficient production capacity to produce new warheads in sufficient quantities to meet any defense needs that arise without disrupting ongoing refurbishments. In the near term, refurbishment demands, starting later this decade and continuing until about 2014, will dominate production capacity.
- Support for force augmentation: We must assure that services such as warhead transportation, tritium support, etc., are not “long poles in the tent” for force augmentation—they must be capable of being carried out on a time scale consistent with the Department of Defense’s (DOD) ability to deploy weapons.
- Underground nuclear test readiness: We have no plan to resume testing; our efforts to improve test readiness are a prudent hedge against the possibility of a problem arising in the stockpile that cannot be confirmed, or a fix certified, without a nuclear test. Our goal is to achieve an 18-month test readiness posture as directed by the Defense Authorization Act. Eighteen months is appropriate because that is a typical time to diagnose a problem and design a test to confirm the problem or certify the fix.

A responsive infrastructure has both intellectual and physical dimensions. Intellectually, the administration’s proposals to examine new advanced concepts will allow us to train the scientists and engineers who must provide the design underpinning for a responsive infrastructure. Physically restoring a capability to produce plutonium pits in sufficient quantities will be essential. The Modern Pit Facility (MPF)—or, more accurately, a pit rework facility—will support the pit remanufacturing needs of the entire stockpile. It is important to understand that we need this facility even if the United States never produces another new weapon. All existing plutonium pits will ultimately need to be rebuilt due to aging effects, for example, caused by radioactive decay of plutonium.

We are just beginning the transformation to a responsive nuclear weapons infrastructure. I call for your support in this important endeavor.

#### NEAR TERM IMPLICATIONS

Let me now discuss two specific elements of the administration's budget request and how they relate to the principles we have been discussing. The NPR highlighted the importance of ensuring that the weapons complex can adjust to the changing requirements of nuclear deterrence in the coming decades. In fiscal year 2005, we propose continuing a modest research effort on advanced concepts to meet potential new or emerging requirements. We also propose continuing the Robust Nuclear Earth Penetrator (RNEP) feasibility and cost study now underway.

Because there has been a great deal of discussion on the implications of these two programs, I would like to review them in some detail. We intend to use advanced concepts funds to investigate new ideas, not necessarily new weapons. For example, we are beginning a study examining the feasibility of adapting an existing nuclear warhead to provide a cruise missile capability that incorporates enhanced safety and user control. Some additional work is underway to examine the feasibility of improving warhead design margins in order to ensure continued high confidence in warhead reliability without nuclear testing. We are also in discussion with the Air Force on examining the utility of nuclear weapons to destroy chemical and biological agents, although no decisions to study this area have yet been reached. The DOD and Department of Energy (DOE) will jointly determine the specific uses of the remaining fiscal year 2004 and the proposed fiscal year 2005 funds.

Perhaps the single most contentious issue in our budget request is continued funding for the RNEP study. This study is to determine whether existing warheads—the B61 and the B83—could be adapted without nuclear testing to improve our ability to hold at risk hardened, deeply buried facilities that may be important to a future adversary. I want to correct several misconceptions about this effort:

- There is a clear military utility to such a weapon, which is why the DOD asked for it to be studied. A classified report was submitted to this committee last year on this subject and remains valid.
- Despite this utility, we will move beyond the study stage only if the President approves and funds are authorized and appropriated by Congress. We included funds in our out-year projections only to preserve the President's options. No decision will be made until the study is completed. The law is clear that beginning development engineering requires congressional approval.
- Even if deployed, this weapon does not represent a change from our policy goal of deterrence. Deterrence requires we be able to hold at risk that which an adversary values. Our efforts to determine the potential effectiveness of an earth penetrating weapon reflect a continued emphasis on enhancing deterrence. Once again I refer you to the classified report submitted last year.

#### *Nuclear Misconceptions*

Let me conclude my statement by addressing three misconceptions that have been raised both by Members of Congress and by others:

- That we sought repeal of the prohibition on low-yield warhead development in order to develop and field new, low-yield nuclear weapons;
- That in doing so we will blur the distinction between nuclear and conventional weapons, making nuclear use more likely; and
- That nuclear weapons R&D necessarily undercuts U.S. nonproliferation efforts.

While press accounts have spoken of administration plans to develop new, low-yield weapons, there are no such plans. Nor does repeal of the prohibition on low-yield warhead development commit the United States to developing, producing or deploying new, low-yield warheads. Such warhead concepts could not in any case proceed to full-scale development, much less production and deployment, unless Congress authorizes and appropriates the funds required. Repeal of this vague restriction simply removed the chilling effect on scientific inquiry that has hampered our scientists' ability to explore technical options of any yield because such options "could lead to" designs of less than five kilotons. Our scientists need the freedom to explore new concepts both to maintain and exercise their intellectual capabilities and to respond to needs that one day might be articulated by this or a future President.

Nor are U.S. R&D programs blurring the line between conventional and nuclear weapons, making nuclear use more likely. This is not simply an assertion, but is

empirically based. Recall that from the 1950s and continuing through today, the U.S. nuclear stockpile has contained warheads capable of producing very low nuclear yields. At the height of the Cold War many thousands of these warheads were deployed, but never used—even in regional confrontations where their use would not necessarily have provoked a Soviet response. There is no evidence that the simple possession of these weapons made nuclear use by the United States more likely. To be clear, only the President can authorize use of U.S. nuclear weapons and no President would be inclined to employ any nuclear weapon, irrespective of its explosive power, in anything but the gravest of circumstances. Simply put, the nuclear threshold for the United States has been, is, and always will be very high.

Along these lines, the NPR emphasized an increasing potential to base deterrence more on non-nuclear and missile defense capabilities, and called for development of high-precision, advanced conventional weapons to replace nuclear systems, where possible, to further reduce our reliance on nuclear forces to deter aggression.

Finally, the major U.S. nonproliferation objective is to prevent rogue states and terrorist groups from acquiring weapons of mass destruction (WMD) and systems for their delivery. Neither advanced concepts efforts nor studies of an earth-penetrating weapon will increase incentives for terrorists to acquire such weapons—those incentives are already high and are unrelated to U.S. capabilities. Nor are they likely to have any impact on rogue states, whose proliferation activities march forward independently of the U.S. nuclear program. Over the past decade we have seen very significant reductions in the numbers of U.S. (and Russian) nuclear weapons, reductions in the alert levels of nuclear forces, and the abandonment of U.S. nuclear testing. No new warheads have been deployed and there has been little U.S. nuclear modernization. There is absolutely no evidence that these developments have caused North Korea or Iran to slow down covert programs to acquire capabilities to produce nuclear weapons. On the contrary, those programs have accelerated during this period.

#### CONCLUSION

Mr. Chairman, the United States will continue to lead the way to a safer world through the deep reductions in nuclear forces codified by the Moscow Treaty, through Nunn-Lugar and other Cooperative Threat Reduction (CTR) efforts, and through other actions. At the same time, although conventional forces will assume a larger share of the deterrent role, we will maintain an effective, reliable, and capable—though smaller—nuclear force as a hedge against a future that is uncertain and in a world in which substantial nuclear arsenals remain. Our ongoing efforts to reduce the current stockpile to the minimum consistent with national security requirements, to address options for transformation of this smaller stockpile, and to restore a responsive nuclear weapons infrastructure are key elements of the administration's national security strategy. Carrying out these efforts will pose no risk to critical U.S. nonproliferation objectives.

Mr. Chairman, this concludes my statement. I look forward to your questions.

Senator ALLARD. Admiral Ellis, we are now ready to hear your comments.

#### **STATEMENT OF ADM. JAMES O. ELLIS, JR., USN, COMMANDER, UNITED STATES STRATEGIC COMMAND**

Admiral ELLIS. Thank you, Mr. Chairman. It is a delight to be with you again today, a privilege as well to join with Ambassador Brooks in this hearing. As you have already noted, the NNSA is a strong and vital partner with STRATCOM and the DOD. With their unparalleled expertise, we conduct vital life extension and stockpile stewardship programs, as well as research and test Advanced Concepts to assess how we can further reshape and enhance our strategic capabilities.

My written statement defines and details the current posture of STRATCOM's newly assigned mission areas. I appreciate your inclusion of that in the record, as you indicated, sir.

On March 11, I testified before the full Senate Armed Services Committee, as you recall, at a hearing on our missile defense mission. I have the opportunity to testify before this subcommittee

once again tomorrow afternoon to discuss the important issues regarding one of our most important legacy missions, that of space operations.

The focus today, as you have noted, is on the strategic deterrent mission and strategic capabilities, nuclear, conventional, kinetic, non-kinetic, Information Operations (IO), and Special Operations Forces (SOF), and the opportunities we now have to shape a dramatically different strategic future for our command and for our Nation.

As you recall, on January 10, 2003, the President signed Change Two to the Unified Command Plan (UCP) and assigned STRATCOM, as you noted, four previously unassigned responsibilities. Those are Global Strike, Global Missile Defense (GMD), DOD IO, and command, control, communications, computers, intelligence, surveillance, and reconnaissance (C<sup>4</sup>ISR).

With the assignment of this unique combination of global roles, responsibilities, authorities, and capabilities under a single unified command, we have taken the opportunity to recapture the classic definition of the term “strategic” that is essential to the conduct and success of large-scale military operations.

In January of this year, I reported to the President that STRATCOM had achieved full operational capability (FOC) for oversight and direction of all of these assigned missions. Each mission area itself continues to develop. Three missions, Global Strike, IO, and C<sup>4</sup>ISR are progressing towards full operational capability in 2004. GMD, the fourth mission area, will achieve Initial Defense Operations (IDO) in the months ahead. It has been, as you noted, a tremendous year of change and progress incorporating new missions and building a new organization—all while focusing support to other regional combatant commanders (RCCs) during Operation Iraqi Freedom (OIF) and the broader global war on terrorism.

Also during 2003, STRATCOM had many key accomplishments to include: developed a Global Strike concept plan and validated the plan through a series of regional exercises; established a Global Operation Center (GOC) and Global Integration Center (GIC) to command, control, and integrate support to the joint warfighter wherever he or she might be on the face of the Earth; and accepted transfer of responsibility for the production of reconnaissance operations planning from the Joint Staff, a first step in achieving global ISR integration.

We developed a Joint Forces Headquarters for IO (JFHQ-IO) within the overall headquarters structure and established functional relationships with the National Security Agency (NSA), Defense Information Systems Agency, Defense Intelligence Agency (DIA), and National Geospatial-Intelligence Agency. We provided federated intelligence support to Central Command (CENTCOM) and to Pacific Command (PACOM), producing over 3,000 products covering four geographic areas and over 12,000 points of interest.

We recognize there are many opportunities and challenges that still lie ahead, and I and all of my colleagues at STRATCOM remain committed to working with our strong and growing team of partners to address each one. Opportunities to move our command forward include continuing the implementation of the NPR while refining the way ahead through ongoing strategic capabilities as-



sessments. I might parenthetically add that given its breadth and scope, as Ambassador Brooks so eloquently described it, it might have been more appropriately named the Strategic Posture Review for the implications that it has to my command and to the Nation.

This effort will enable continued reduction in the Nation's nuclear arsenal even as we examine future deterrent concepts, sustain the safety and surety of the stockpile, and modernize, for our partners in the NNSA, the Nation's technical infrastructure.

We are also going to be exploring new concepts of ISR that will permit collating and fusing data collected by the Intelligence Community and DOD sources. Our goal is to aid the Nation's military and civilian leaders. As they move rapidly up the continuum, we all must travel from data to information to knowledge and to wisdom. We are also embracing the concept that ISR in a real sense has a deterrent character all its own.

We are going to be simultaneously employing a national missile defense test bed to provide the Nation with a rudimentary defensive capability even as we support the Missile Defense Agency (MDA) as it incrementally refines and evolves a future multi-layered GMD system. We will be delivering, I believe, on the full potential of the DOD IO by supporting real advances in the incorporation of computer network attack and defense, electronic warfare, psychological operations, strategic deception, and operational security, all elements of DOD IO into our mission areas.

In conclusion, as STRATCOM continues to shape the heart of the Nation's strategic capability, a fundamental principle remains. Deterrence has credibility only to the extent that we back it up with capability, determination, and resolve. STRATCOM provides credibility through its cohesive package of both new and legacy missions even as we explore new deterrent concepts to serve the Nation in a very different future.

Thank you very much. I look forward to your questions.

[The prepared statement of Admiral Ellis follows:]

PREPARED STATEMENT BY ADM. JAMES O. ELLIS, JR., USN

#### I. INTRODUCTION

Chairman Allard, Senator Nelson, and distinguished members of the subcommittee, it is an honor to once again appear before you, representing the outstanding men and women of United States Strategic Command (STRATCOM) and to review the strategic and space capabilities that remain vital contributors to our Nation's security. During my last appearance before your subcommittee, I outlined how STRATCOM, our components, and task forces were crafting a new command focused on integrating space capabilities, deterring a wider array of potential adversaries, and recasting the Nation's global military capabilities for the demands of the 21st century.

Today, I can report that the finest soldiers, sailors, airmen, and marines—representing active duty, the National Guard, and the Reserves—joined by a cadre of talented civilians, have made tremendous progress in maturing the missions of the new STRATCOM.

As you recall, on January 10, 2003, the President signed Change Two to the Unified Command Plan (UCP) and tasked STRATCOM specifically with four previously unassigned responsibilities. These are: Global Strike, Global Missile Defense (GMD) Integration, Department of Defense (DOD) Information Operations (IO), and command, control, communications, computers, intelligence, surveillance, and reconnaissance (C<sup>4</sup>ISR). This unique combination of roles, responsibilities, authorities and capabilities, under a single unified command brought with it new opportunities to recapture the classic definition of the term “strategic”: essential to the conduct of large scale military operations. In this strategic context, we also have been given the op-

portunity to support our Nation's security requirements around the globe by directly supporting the regional combatant commanders (RCCs) and their deployed forces.

On January 1, 2004, I was pleased to report to the President of the United States that STRATCOM has completed reorganization and achieved full operational capability (FOC) for oversight and direction of all assigned missions. Each mission area continues to develop and, as we apply resources to each, we are moving to reach and maintain FOC in those four areas by the end of this year. Three of our missions, Global Strike, Global Integrated IO, and Global C<sup>4</sup>ISR, are on track and progressing toward FOC during 2004. GMD, the fourth newly assigned mission, will achieve Initial Defensive Operations (IDO) in the months ahead and will support concomitant achievement of STRATCOM oversight FOC.

There is still much work to do and we have outlined five major, near-term goals for STRATCOM, each of which has the potential to add significantly to our national defense.

These opportunities include:

- Proactively moving to enhance the security of our critical space systems. This will enable us to maintain an advantage in space while denying an asymmetric avenue of attack for our adversaries. In concert with service and Office of Secretary of Defense (OSD) partners, we are crafting a step-by-step plan that approaches the problem in manageable increments.
- Continuing the implementation of the Nuclear Posture Review (NPR) while refining the way ahead through the ongoing Strategic Capabilities Assessment. This effort will enable continued reduction in the Nation's nuclear arsenal even as we examine future deterrent concepts, sustain the safety and surety of the stockpile, and modernize, through our partners at the National Nuclear Security Administration (NNSA), the Nation's technical infrastructure.
- Exploring new concepts of ISR that will permit collating and fusing data collected by the Intelligence Community and defense sources. Our goal is to aid the Nation's military and civilian leaders to move rapidly up the continuum from data to information to knowledge to wisdom.
- Simultaneously employing a nascent missile defense test bed to provide the Nation with a rudimentary defensive capability even as we support the Missile Defense Agency (MDA) as it incrementally refines and evolves a future multi-layered GMD system.
- Delivering on the full potential of DOD IO by supporting real advances in the incorporation of computer network attack and defense, electronic warfare, psychological operations, strategic deception, and operational security into our mission areas.

## II. PROGRESS OF THE "NEW" U.S. STRATEGIC COMMAND

It was a year of tremendous change and progress—incorporating new missions and crafting a new organization—all while primarily focused on supporting Operation Iraqi Freedom (OIF) and the broader global war on terrorism. During the past year, this command and our components have:

- Developed a Global Strike Strategic Concept, validated it through a series of exercises and gained final approval of a Global Strike plan.
- Developed a Missile Defense Concept of Operations (CONOP) with plans in place to support operator training, evolutionary testing and system employment for GMD at IDO.
- Developed a C<sup>4</sup> CONOP and established a Global Operation Center (GOC) and Global Integration Center (GIC) to command, control, and integrate support to the joint warfighter.
- Transitioned the Space Operations Center in Colorado Springs to the Space Operations Watch in the GOC in Omaha.
- Hosted Senior Warfighter's Forum to identify combatant commands' requirements for future satellite communications capabilities.
- Accepted transfer of responsibility for production of the Sensitive Reconnaissance Operations plan from the Joint Staff, a first step in achieving global ISR integration.
- Formed Joint Force Headquarters (JFHQ) IO within the overall headquarters structure, commanded by the Deputy Commander, STRATCOM.
- Established strong, functional relationships with the National Security Agency (NSA), Defense Information Systems Agency, Defense Intelligence Agency (DIA), and the National Geospatial-Intelligence Agency.
- Provided federated intelligence support to U.S. Central Command (CENTCOM) and U.S. Pacific Command (PACOM), producing over 3,000

products covering four geographic areas covering over 12,000 points of interest.

- Procured, prioritized, and allocated military and commercial satellite bandwidth to support the critical communication needs of the combatant commanders.
- Forward deployed STRATCOM support teams with reach-back capabilities for strike planning, intelligence, and space and information operations.
- Transmitted theater early warning data on missile launches to RCCs.
- Through the Army's Space and Missile Defense Command, provided successful Space Based Blue Force Tracking capabilities for Special Operations Forces (SOF).
- Through the Joint Information Operations Center (JIOC), fully integrated IO into OIF operational planning, contributing directly to shaping of the operation and elements of its combat success.

### III. NEWLY ASSIGNED MISSIONS

#### *Global Strike*

The Global Strike mission embodies STRATCOM's "capabilities-based" strategy and employs various assets to execute limited-duration, extended-range, and precision kinetic and/or non-kinetic strikes anywhere on the globe. Our adaptive planning process is being upgraded with the goal of accelerating development of courses of action for rapid presentation to our national leadership. When fully realized we will be able to dramatically shrink response timelines.

This new construct also provides the Nation with a combatant command that effectively works across traditional regional boundaries and addresses potential threats with a global perspective. We are strengthening formal relationships through extensive coordination with RCCs, Services, the Joint Staff, and the OSD.

#### *Information Operations*

As with our other global responsibilities STRATCOM is tasked with integrating and coordinating DOD IO across regional areas of responsibility (AORs). Core pillars of IO include computer network defense, computer network attack, military deception, operations security, psychological operations, and electronic warfare. The recently published DOD IO Roadmap also supports collaboration of broad IO efforts across the DOD, the Intelligence Community, and other national-level organizations in coordinated support of operations directed by the RCCs.

The ability to quantify IO effects is another area of concerted effort at STRATCOM. Initial conclusions from advanced concept technology demonstrations and a number of experiments all recommend establishing a national test range for IO. STRATCOM is working closely with the OSD in establishing the requirements for just such a test range. This range will help us define effects in understandable terms, quantify systems' performance and provide assurance that the elements of IO will achieve the desired effects while avoiding unintended consequences.

- Organizing for Success

In April 2003, we formed a JFHQ-IO within our overall headquarters structure. This interim move enables STRATCOM to provide IO support directly to warfighters while, at the same time, developing our internal structure and nurturing these evolving capabilities.

In the past year, we have successfully integrated Computer Network Exploitation and Attack mission areas. The Network Attack Support Staff was established to function as the Computer Network Attack planning interface between the combatant commanders and the Intelligence Community. This component has significantly streamlined the planning process and contributed directly to the maturation of our efforts.

- Support to global war on terrorism

STRATCOM provides tailored, deployable Strategic Support Teams that combine the capabilities of the JIOC, located in San Antonio, with support elements from many other STRATCOM functional mission areas. Additionally, as we prosecute the war on terrorism, effective IO is becoming even more essential to our success. Supporting U.S. Special Operations Command (SOCOM), U.S. Southern Command (SOUTHCOM), PACOM, U.S. European Command (EUCOM), and CENTCOM for global war on terrorism and IO planning, JFHQ-IO works to provide an IO perspective, broader and deeper than any one RCC staff can, thus allowing us to better achieve required global effects in support of national strategic objectives. Our GIC will interface with other organizations to provide Time Sensitive Planning (TSP) as well as Crisis Action Planning. TSP oversight expertise will reside in the GIC and will formalize and codify STRATCOM's standard operating procedures, drawing on

all organizational elements so as to provide global effects in support of all combatant commanders.

- The Way Ahead

The future of global IO requires us to better define our operational battlespace. STRATCOM is developing a common operational picture based on inputs from all available DOD and intelligence sources. We are also developing measures of effectiveness, with corresponding metrics, allowing us to gauge the success or failure of a specific IO course of action.

The challenge is melding the art and science of IO with emerging technologies, training, and educating senior warfighters in these concepts, and, most importantly, developing a cadre of military leaders with sound IO skills.

#### *Global Ballistic Missile Defense (GBMD)*

In my statement presented to the full Senate Armed Services Committee on March 11, 2004, I discussed the status of STRATCOM's GBMD mission. Missile defense concepts have evolved from separate efforts focused on the terminal intercept of short and medium range ballistic missiles. The single entity of GBMD now includes mid-course intercept of intercontinental ballistic missiles (ICBMs), and, in the years ahead, development of a multi-layered missile defense system contributing to the defense of the U.S., our allies, and our interests abroad. STRATCOM is developing the GBMD CONOP and the battle management architecture in order to provide full capabilities for RCCs defensive employment.

The IDO is the first increment of a capabilities-based approach in developing and providing GBMD. Initial capability will include the ability to detect a launch, display the data for decision makers, relay command and control execution decisions, and then to fire a ground-based interceptor. Our plan calls for a continued assessment of the Ballistic Missile Defense System (BMDS) capabilities as they are developed and fielded by the MDA. Fielding a layered and integrated GBMD system is best accomplished in a spiral manner. An initial capability, followed by evolutionary improvements, provides commanders with both operational flexibility and an increased range of system design options based on extensive testing and assessment.

#### *Global C4*

Future ISR systems, along with new weapons platforms, are expected to at least double the current demand on the global communications infrastructure. (During Operation Enduring Freedom (OEF), General Tommy Franks required 32 times more bandwidth than did General Norman Schwarzkopf during Operation Desert Storm (ODS).) Change Two of the UCP directs STRATCOM to coordinate C<sup>4</sup> capabilities in support of strategic force employment.

- Providing Robust Communications Architectures

The DOD is developing the Global Information Grid—Bandwidth Expansion (GIG-BE) to address the growing bandwidth requirements. This program is key to enabling the vision of universal situational awareness for the warfighter. GIG-BE is scheduled to provide a fiber connection to over 100 sites by the end of fiscal year 2005, providing much needed, wideband terrestrial connectivity. Once completed, GIG-BE will provide a robust, optical Internet Protocol Network that the warfighter can post and access information at multiple levels of classification.

- Information Assurance (IA)

The DOD established the Information Assurance Vulnerability Management (IAVM) program in 1998 to notify combatant commands, Services, and DOD agencies about network vulnerability alerts and countermeasures information. In our assigned role of directing DOD-wide computer network defense, the IAVM program is one of the key means we use to rapidly update the security of DOD computers.

We are working to improve our ability to automatically apply software patches across large networks, correct vulnerabilities identified through the IAVM process, and automatically verify patch compliance. This is a formidable challenge; DOD networks are complex, with over 3 million computers and a wide variety of operational configurations. Our partnership with industry will help us develop the best approach.

The warfighter of today accesses information by sifting through networks stratified by classification and membership. The GIG-BE will result in a more easily accessible network providing multi-level security information to authorized users. Enforcing need-to-know while enabling need-to-share presents DOD IA personnel the challenge of moving from a defense-in-depth mindset to an IA-throughout approach.

As the DOD moves from the Defense Information Infrastructure (DII) to the GIG-BE, it also brings a new approach to network defense. With the DII, our efforts were focused on defense in-depth, with layers of defense to keep intruders from breaching our information fortress. In contrast, the GIG focuses on defense throughout. This

concept incorporates a model that recognizes intrusions may occur, and allows the network to remain functional even as the infection is being cured.

- Transformational Communication System (TCS)

A second fundamental requirement for our information networks is to achieve the “Power to the Edge” vision of John Stenbit, former Assistant Secretary of Defense for Networks and Information Integration. He said, “We must replace top-down operations with distributed operations—and use information technology to empower whomever is in need of a solution, regardless of where that individual is.”

Developing this type of network requires reshaping our security philosophy and technology. Identity management must focus on end users, applications, and services. This will enable distributed computing between allied components using applications able to securely communicate with other applications. STRATCOM is working closely with the OSD staff and the Transformational Communications Office to develop the policies and architectures needed to realize the vision of the TCS.

#### *ISR*

Change Two of the UCP tasks STRATCOM with planning, integrating, and coordinating DOD ISR in support of strategic and global operations. Day-to-day operational control of DOD ISR assets will typically remain with the RCCs.

STRATCOM is applying its unique global focus to planning and executing the DOD ISR mission. In effect, DOD ISR will be employed as a weapon system against specific strategic objectives and priorities. Each platform allocation will be planned to achieve specific effects and will be evaluated against that objective. New relationships and mechanisms are being developed to bring existing expertise and capabilities together in new, more powerful ways.

To fulfill this mission, STRATCOM has organized intelligence and operations into an ISR Division that is unique among combatant commands. By integrating the operations and intelligence elements of the DOD ISR mission, we provide a holistic view of DOD ISR to increase the synergy between those who determine the requirements, those who conduct the operations to satisfy those requirements, and the end-users of collected and processed intelligence.

The initial focus of our ISR Division is completion of the recently approved DOD ISR Implementation Plan. The timeline for transfer of the DOD ISR processes identified in the ISR Implementation Plan began with the sensitive reconnaissance operations approval process in December 2003 and will end with the ISR allocation process in October 2004. We have just completed observing the latest bi-annual allocation process and started identifying steps necessary to transfer the process to STRATCOM by the fall of 2004.

In addition to fulfilling current ISR requirements, STRATCOM is actively engaged in determining future airborne ISR needs. As the combatant command lead for DOD Airborne ISR, we will have visibility into the requirements from the theaters. Combining a composite list of theater requirements with emerging technologies allows us to develop a comprehensive list of capabilities to better support the RCCs. We will work closely with U.S. Joint Forces Command (JFCOM) to fully integrate DOD ISR into architecture and doctrine development. However, to be truly effective, we must find a more efficient means to influence the shape of DOD ISR procurement programs. The overarching goal is a more efficient, effective, responsive, and coordinated DOD ISR capability across the globe. With the responsibility for both DOD ISR allocation and advocacy, STRATCOM is uniquely positioned to provide a global view of both intelligence needs and required future capabilities.

All of this effort will also support the objectives for intelligence sharing set by the Under Secretary of Defense for Intelligence. His office is crafting policies and supporting architecture to horizontally integrate collected intelligence from the theaters with the information acquired by the national agencies. STRATCOM sees this as a significant step toward providing all users with better insight into collected intelligence and enabling the sharing of essential information among all legitimate users. We believe this concept will significantly enhance intelligence available to all users and showcase the operational potential of future persistent intelligence collectors such as Space-Based Radar (SBR).

#### IV. FUTURE OF NUCLEAR FORCE STRUCTURE

##### *Sustainment and Modernization*

- ICBMs

ICBMs have been a mainstay of strategic deterrence for decades, providing prompt responsiveness, high reliability, accuracy, rapid and flexible targeting, and a high state of alert readiness. With Peacekeeper deactivation proceeding as planned, Minuteman III will soon be our Nation's only remaining land-based strate-

gic deterrent. Recognizing the importance of the Minuteman III weapon system, the Air Force has implemented an aggressive life extension program for the Minuteman III ICBM force to ensure weapon system reliability through 2020.

We appreciate Congress' continued strong support for ICBM weapon systems by funding reliability upgrades to critical components of the Minuteman III. These include the Guidance Replacement Program, Propulsion Replacement Program, Propulsion System Engine Life Extension, Safety Enhanced Vehicle Program, and Command and Control, Security and Cryptography Upgrades. Finally, we support an analysis of alternatives (AOA) that will examine follow-on systems to the Minuteman III.

- **Bomber Force**

The long-range bomber fleet is the second essential element of the Nation's strategic deterrent force as well as a primary element of our conventional Global Strike capability. The B-52 Avionics Midlife Improvement Program remains a high priority for STRATCOM and is critical to sustaining the platform into the next decade. Of equal concern is keeping the B-2 radar replacement program on track.

The viability of our bombers in a nuclear and conventional role requires unimpeded access to increased bandwidth as well as secure, survivable, and endurable global communication capabilities inherent in the next generation satellite communication constellations. Robust command and control, coupled with the recently demonstrated value of real-time, in-flight bomber weapon re-targeting, require that we continue to synchronize the fielding of bomber communication terminals with the launches of advanced communications satellites.

- **Strategic Ballistic Missile Submarine (SSBN)**

The final leg of strategic deterrence is the D5 Submarine Launched Ballistic Missile. Life extension (LE) and back-fit programs will provide a standardized fleet of 14 *Ohio* class SSBNs capable of employing D5 Trident II missiles for the full hull life of these submarines (extended to 45 years). The last two submarines awaiting upgrade will complete their D5 back-fit and refueling overhauls in fiscal year 2007 and fiscal year 2008. D5 LE upgrades the guidance and missile electronics on fielded D5 missiles and procures additional missiles to meet system reliability and accuracy testing needs for the life of the program, while also providing a sufficient quantity of missiles to fully load out 12 SSBNs.

The conversion of the four *Ohio* class SSBNs to Guided Missile Submarines (SSGNs) is an example of modifying existing platforms, concepts and capabilities for a dramatically different military role. SSGN conversions are on schedule and are being completed in conjunction with scheduled Engineering Refueling Overhauls (EROs). The boats will be equipped with conventional cruise missiles, extensive special operations capability, and will be assigned evolving new missions. The U.S.S. *Ohio*, U.S.S. *Florida*, and U.S.S. *Michigan* have entered ERO and are proceeding on an aggressive conversion schedule with deliveries scheduled for 2005 and 2006. The U.S.S. *Georgia* is scheduled for ERO in 2004 and conversion will be completed by 2007.

- **Stockpile Stewardship**

In addition to our vital life extension and modernization programs, we are working closely with our partners in the Department of Energy (DOE), DOD, and Congress to ensure our nuclear stockpile remains safe, reliable, and credible. As the Nation's nuclear stockpile continues to age, we must carefully monitor its condition. Through the NNSA's Science-Based Stockpile Stewardship Program, we continue to improve our surveillance, modeling, and simulation tools and processes in order to provide the critical data on aging effects, component reliability, and physics phenomena we require in the absence of nuclear weapon testing. Past reductions in nuclear weapon infrastructure capacity require that the essential warhead life extension programs be carefully sequenced with scheduled warhead dismantlement so as to provide just-in-time delivery to meet operational deterrent force requirements. We are working closely with the NNSA, the national laboratories, and plants to shape their support to our future stockpile. With the production complexes operating near peak capacity, we will need to optimize the balance between essential life extension programs and dismantlement work.

A 2003 congressionally-mandated panel, led by Dr. John Foster, Jr., reported that our nuclear weapons program must be balanced between maintaining the existing warheads and the need to transform elements of the existing stockpile for the future. As we reduce our nuclear forces toward the goal of 1,700–2,200 operationally-deployed strategic nuclear warheads by 2012, we must concurrently analyze and research advanced concepts in order to realize the vision of the Foster Panel and the NPR. The results of this research will, in turn, enable objective, fact-based discussions on very important deterrence and policy issues.

- Assessment and Testing

The United States' nuclear stockpile has a weighted average age of over 20 years, and we are the only nuclear power without a current capability to build a complete nuclear weapon. The Science-Based Stockpile Stewardship Program supports ongoing research and development (R&D) of new advanced technologies and analytical tools to assess the health of our aging stockpile without a current need for underground testing.

Since 2000, the DOE has used the Advanced Computing Initiative as an integral part of the Science-Based Stockpile Stewardship Program to analytically simulate nuclear explosions. These computational experts and their physicist colleagues in our technical laboratories are a national treasure, trained to make sense of torrents of information obtained from those simulations to certify the safety and reliability of the current stockpile.

## V. SPACE OPERATIONS

Across DOD, space is both a major integrator of missions and a global enabler for our forces. Our space assets gather and disseminate real-time data on virtually any location on the globe, as well as provide essential command and control capabilities to forces anywhere on the planet. That is why STRATCOM elected to embed space operations throughout our organization rather than treating it as a specific, stove-piped mission area. U.S. dependence on space, and the potential corresponding vulnerabilities, demand that our national security space interests be addressed as top national security priorities. Our focus includes:

### *Improving U.S. Launch Capabilities*

New capabilities are required to enable rapid augmentation, replacement, or repair of satellites lost due to component failure or adversary action. STRATCOM looks to the Air Force, the National Aeronautics and Space Administration (NASA), and industry partners to expedite delivery of a more effective, next-generation launch system.

### *Resolving Space System Vulnerabilities*

Operations in Iraq demonstrated that adversaries can and will challenge our ability to use space assets. The attempts to jam our global positioning system (GPS) and degrade the accuracy of our precision weapons, in Navy parlance, were a "shot across the bow." DOD must be able to monitor the health of our essential systems, advance our space situational awareness, and respond appropriately to sustain our national on-orbit capabilities. In support of the leadership of the DOD Executive Agent for Space, Peter Teets, STRATCOM is fully engaged in assessing and strengthening all elements of our space systems.

### *Space Based Infrared System (SBIRS)*

The potential provided by the developing SBIRS will be a key contributor to greater capabilities in the mission areas of theater and global missile warning, missile defense, technical intelligence, and battlespace characterization to support real-time warfighting operations. As designed, SBIRS will expand our ability to detect shorter-range missiles with systems designed for both tactical and strategic requirements. Once operational, SBIRS will not only represent our primary source of initial warning, but will also represent the first link in the chain of a layered, integrated missile defense. Deployment of a capability such as SBIRS is essential to replace legacy systems, some elements of which are now operating well beyond their intended life.

### *Satellite Communications*

Military satellite communications will remain our primary means of providing dedicated, secure, and/or hardened command and control capabilities for worldwide military operations. During the past year, we launched the final satellites to complete the Defense Satellite Communications System (DSCS), Milstar, and Ultra High Frequency (UHF) follow-on constellations. These systems have served us well for decades and many have lived far beyond their projected life expectancy. As a result of this extended service life, deployment of more modern and more capable replacements is needed immediately. The capabilities represented by these programs will be sustained and improved with the launch of the next generation of satellite systems beginning with the Wideband Gapfiller Satellite in fiscal year 2005 and continuing through the launches of the Advanced Extremely High Frequency (AEHF) and Mobile User Objective System (MUOS).

The Wideband Gapfiller program consists of five high capacity satellites launched from fiscal year 2005–2010 that will replace the aging DSCS and Global Broadcast

Service satellites, providing DOD with high-capacity, wideband service for the Nation.

The AEHF program is the follow-on to Milstar. Currently scheduled to launch three satellites during fiscal year 2007–2009, AEHF provides up to 10 times the capacity of Milstar, a significant increase in coverage, and the ability to support twice as many networks. It will support national, strategic, and tactical users requiring protected, anti-jam, survivable communications for national crises, Emergency Action Message dissemination, Integrated Tactical Warning/Attack Assessment, missile defense, presidential secure voice conferencing, and interoperability with selected international partners.

The MUOS will field five UHF satellites to provide the warfighter on-demand, high capacity communications to ISR, and weapons system platforms on the move. This system is designed to alleviate the need to purchase expensive, commercial satellite services. MUOS launches currently are scheduled for fiscal year 2009–2011.

Investments in replacement technology and capacity will help maintain the U.S. as the pre-eminent space faring nation well into the future. STRATCOM will remain engaged as these programs are developed and procured to monitor progress and ensure warfighter requirements are clearly articulated.

STRATCOM is working with the Joint Staff, the Defense Information Systems Agency (DISA), and, as appropriate, the commercial satellite industry to develop a methodology whereby DOD can assure future satellite communications systems are designed, funded, fielded, and sustained as an end-to-end communication system. In the past, complex communications systems routinely were procured in parallel, as separate elements, and often by many organizations. Due to increased system complexity and the number of segments involved, an end-to-end synchronized acquisition process is essential. We must streamline the process and develop a procedure to centrally fund and manage seamless, integrated, on-demand capable satellite communication services to meet national security needs.

## VI. GLOBAL INTEGRATION AND COOPERATION

### *Integrating the GOC*

On April 15, 2003, STRATCOM published an overarching operational concept to incorporate changes driven by the assignment of our global missions. Central to this document is the creation of the GOC. The GOC and its supporting command elements will enable STRATCOM to provide responsive support to the President, Secretary of Defense, combatant commanders, and agencies. Additionally, the GOC, with support of our components, will develop and leverage global battlefield situational awareness and present decision makers with full spectrum courses of action that integrate all STRATCOM's missions and capabilities.

Within the GOC, we will also perform space operations including space control, space support, and force enhancement. The GOC will enable STRATCOM to better execute our assigned missions by providing improved responsiveness and better command and control of our missions by placing the responsibility for mission support and execution under a single integrated operations center.

The Combatant Commander's Integrated Command and Control System (CCIC<sup>2</sup>S) is the integrated battle management command and control engine for STRATCOM. CCIC<sup>2</sup>S integrates fixed and mobile command and control systems to support our missions and RCCs. CCIC<sup>2</sup>S must be responsive to the combatant commander's vision and "evolve to a highly responsive and cost-effective sensor-to-decisionmaker-to-shooter capability." It supports spiral development and delivery of air defense, missile warning, space surveillance and defense, and common command and control service capabilities.

## VII. CHALLENGES AND OPPORTUNITIES

### *Strengthening Components and Agency Relationships*

We continue to seek the proper composition and alignment of components to accomplish our missions while allowing flexibility as our missions evolve. In this area, we have accomplished the following:

- On October 1, 2003, the Commandant of the Marine Corps directed the activation of a Marine Corps service component command called U.S. Marine Corps Forces, STRATCOM (MARFORSTRAT) to support our mission areas.
- We established command relationships to leverage capabilities of the NSA, DISA, and JIOC to provide an armory of IO capabilities.



- The Cruise Missile Support Activities previously assigned to PACOM and JFCOM were realigned under STRATCOM to enhance Global Strike capabilities.

We have become more efficient in organizing our components and are still exploring several opportunities for further realignment of component support in order to avoid unnecessary and duplicative headquarters growth. In those instances, we are seeking mechanisms allowing us to interface with appropriate senior leadership to access the centers of excellence and proven capabilities resident within their subordinate organizations. We call it “capabilities-based componentcy” and it is a construct defined by access to, versus ownership of, resources essential to the accomplishment of our diverse missions.

Partnerships with civilian agencies, private industry, and academia are also vital to successful accomplishment of our missions. As we continue to establish new relationships and enhance existing ones, we remain focused on refining effective and efficient processes in the common pursuit of enhanced national security.

#### *Strengthening Reach-back Capabilities, Joint Exercises, and Training*

DOD is transitioning toward smaller, more agile forces, decreasing the forward footprint of our personnel in theater. To enable mission success for these agile forces, we must provide improved situational awareness and command and control capabilities. This requires unprecedented reach-back to planning capabilities, intelligence products, and other specialized expertise.

A DOD oversight committee is crafting a roadmap for leveraging technologies to provide seamless distributed operations, or reach-back to supporting commands and elements. Developing GIG-BE will greatly improve this reach-back capability. By moving digits, not people, we reduce not only transportation and support costs, but the number of personnel placed in harm’s way. Reach-back capabilities proved highly successful during OIF in supporting targeting, planning, and IO.

In parallel, a specialized team of 35 personnel was sent to support CENTCOM by providing specialized space and information operations planning and execution support. Referred to as a Space and Information Operations Element, this team represents a first step in developing connectivity back to our headquarters for broader access to specific STRATCOM expertise, making our entire headquarters a trusted agent for the RCC.

In the future, we anticipate opportunities for STRATCOM Support Teams to train and/or exercise regularly with the RCCs, thereby building relationships that are well understood before crisis or conflict looms. If requested by the RCC, they will be forward deployed in time of conflict. Alternatively, if that commander were comfortable with reach-back support from this team, they would provide the regional commander with the full spectrum of capabilities from our GIC at Offutt Air Force Base.

As STRATCOM continues to mature our recently assigned global missions, we must develop robust training and exercise programs to test the tactics, techniques, and procedures envisioned in our integrated concept of operations. Our annual major exercise, Global Guardian, has traditionally been a nuclear operations-focused exercise. We are dramatically reshaping that construct and creating a new exercise series that better captures the broad range of new responsibilities while still supporting the essential zero-defect focus on our legacy mission. The Strike Directorate continues to coordinate with RCCs on the command and control structure required to simulate integration of full spectrum Global Strike missions into future regional exercises.

In December 2003, we successfully demonstrated support to a RCC (PACOM) in Terminal Fury 04 in the areas of Global Strike, IO, Space Operations, and ISR. Using extensive reach-back opportunities and Strategic Support Teams, it afforded STRATCOM the opportunity to gain hands-on experience in areas such as planning, executing, and recovering Global Strike missions across regional boundaries. By working closely with PACOM in this exercise, we further developed a regional context and improved capabilities in our new mission areas to extend to all RCCs. The coming year undoubtedly promises new challenges and greater opportunities.

#### VIII. CONCLUSION

As STRATCOM reshapes the heart of the Nation’s strategic capability, we are required to study new deterrence concepts to provide the President with a wider range of military options that bring to bear every element of national power. The warrior Sun Tzu said, “To win without fighting is best.” A fundamental principle remains that deterrence has credibility only to the extent we back it up with capability, determination, and resolve. STRATCOM provides credibility through its cohesive pack-

age of both new and legacy missions, even as we explore new deterrent concepts to serve the Nation in a very different future.

STRATCOM is ready to meet the challenges of the future. We are mindful of the magnitude of the task before us, and confident in the talent of our staff, our components, and our mission partners. In the words of Abraham Lincoln, "The dogmas of the quiet past are inadequate to the stormy present. The occasion is piled high with difficulty, and we must rise with the occasion. As our case is new, so we must think anew, and act anew."

I appreciate your continued support and look forward to reporting our progress to you in the future as we continue to build the new STRATCOM.

Senator ALLARD. I want to thank both of you for your statements.

Admiral Ellis, a recent news article stated that U.S. war planning "is allowing strategic nuclear capabilities to become but one component of a spectrum of potential strategic responses to global terrorism and rogue nations rather than a separate level of capability." As commander of STRATCOM, you are responsible for much of this planning. Do you consider nuclear capabilities to be just another component on a spectrum of capabilities or do you consider them to be a separate level of capability?

Admiral ELLIS. I absolutely do not consider them to be just another element of that continuum, sir. As Ambassador Brooks noted in his statement, the decision that any President, current or future, might have to make with regard to employment of those forces would clearly be the most significant decision he or she ever made in their lifetime. We very clearly understand the difference. We very clearly understand the difference in security and surety that comes with our oversight and stewardship of the nuclear capabilities.

As you are well aware, and as we could address in a more classified forum, there are very distinct and separate command and control elements and processes and security elements in place to ensure that the President, and only the President, in the direst of circumstances can authorize the employment of those systems. So I believe it is incorrect to characterize them as just elements in a continuum of kinetic options. I can assure you that in STRATCOM and the DOD that is not the way they are viewed.

Senator ALLARD. Just for the record, maybe you would just go through the steps that most commanders have to go through to get authorization to use nuclear weapons. You mentioned the President's authorization and I would just like to have you go through those steps for us.

Admiral ELLIS. Yes, sir. The details of that, of course, are appropriately classified. As you alluded to, it is only after presidential and senior civilian leadership consultation with senior military leadership, including the Secretary of Defense, me, my staff, and other involved combatant commanders, that those decisions are weighed and assessed.

Then, should there be no other option—and I emphasize that, as always, these weapons are weapons of last resort—should there be no other option in this hypothetical scenario that you described, then there are very rigorous coded capabilities that ensure that we authenticate the identity of the leaders in the chain of command. Those authorizations are very carefully and rigorously conveyed exactly as spoken and within the scope and context in which they were delivered to the operating forces through robust, hardened

global command and control capabilities that we also oversee at STRATCOM.

So there are a number of checks and balances. There are various layers of oversight that have to be employed simultaneously to ensure that no one individual can take these actions without the authorization of the Nation's senior leadership. I can assure you that we continue to review, exercise, and examine those processes and procedures regularly at my staff level and above, and we are committed to sustaining that level of certainty as we reshape the capabilities for the future.

Senator ALLARD. So to your knowledge, the level of control over nuclear weapons has not been diminished in any way. There are not any initiatives which you are aware of that would reduce positive control over nuclear forces.

Admiral ELLIS. Absolutely not, sir. In fact, just the contrary. We are exploring, as is appropriate, ways in which we can bring into being new technology to further enhance the already rigorous controls that are in place.

Ambassador BROOKS. That is one of the potential uses for the Advanced Concept Initiative, by the way.

Senator ALLARD. Thank you, Ambassador Brooks.

Admiral Ellis, I am worried that our adversaries are adapting to our ability to hit targets with extraordinary precision in part by hardening their assets or burying them deep underground. I know the DOD has identified literally thousands of these types of targets. What is the relationship between these hard and deeply buried targets in your concept of strategic targets?

Admiral ELLIS. Sir, the hard and deeply buried targets that you characterize represent a very important subset of a broader set of targets that might be appropriate for the application of strategic force. I emphasize that that includes strategic force as we now define it, including both conventional, non-kinetic, and SOF, as well as the classic legacy nuclear missions that have historically resided at STRATCOM.

They are a unique target set. They are proliferating, as you note, on a global scale. There are more of them than the Intelligence Community is able to discern, or get hints about, more appropriately, as the years go by. A large number of them can be dealt with by conventional means. But there is a subset on the hard and deeply buried side that are very demanding targets for conventional forces and in some cases cannot be dealt with by conventional forces as we know them, which brings into context three important issues here.

The first is that we need to continue to advance our development of conventional capabilities to further broaden our ability to deal with these target sets. We also need to enhance our ISR capabilities so that we can better identify and characterize these targets. To no one's surprise, if it is important enough to be hard and deeply buried on the part of an adversary, it is also likely to be deceptively camouflaged, to be protected by robust air defenses, and to have multiple levels of command and control and support and communications associated with it.

So, in any way that you would characterize it, it is a very demanding target set. It is one that we are interested in, because it

is obviously a critical node in either the communications for military forces or the leadership control of potential adversaries. So they are appropriate military targets. They have tremendous complexity associated with them. We are in favor of exploring all concepts, the full spectrum of concepts that might be brought to bear to deal with them, if it is so deemed necessary by the Nation's leadership.

Senator ALLARD. Can you give us a sense of what proportion of these targets you think can be defeated today with non-nuclear means and whether that proportion will change over time?

Admiral ELLIS. Well, I would rather not get into exact numbers, because that might be classified. A significant percentage of them can be dealt with by conventional means. That would be the way in which we would intend to employ them. However, as you noted in your statement, adversaries have a way of responding to our capability. As they see capabilities coming on line, it is within their purview to dig deeper and to make these systems harder.

So I would anticipate that unless we advance further down this continuum of capabilities and systems that can deal with this target set, that those that we cannot deal with might continue to grow in the years ahead. How significant that growth is, I defer to the Intelligence Community. Even in that context, it is fair to say that they would not sit here and tell you that they had located all of those that are known to exist in the world today.

So even the numbers as we currently define them probably do not include all those that are actually in use.

Senator ALLARD. How important are prompt, precise delivery systems to the effort to defeat the hard and deeply buried targets?

Admiral ELLIS. We think that prompt and precise delivery systems are key elements to the ability to counter those capabilities, such as a storage area for something that the adversary values very highly. Ambassador Brooks talks about some elements that that might include. Whether it is a leadership location or a command and control capability for military forces that could be used against us or our allies, there is a time criticality associated with that in some context. That needs to be part of planning for any strike mission.

There are little things that have to be dealt with. What is the range of the systems that you have to employ? How fast do they respond? In other words, how fast do they go, or are they in the local area? Then the accuracy and precision element ensures that it requires the minimum number of strike passages, if you are using a manned system, for example, so you expose fewer people to that risk, or it involves fewer numbers of weapons that have to be employed to achieve the desired results.

It also very importantly minimizes any associated collateral damage, of which we are always concerned in the military, as well as looking at targeting options. So for a number of reasons, the things that you describe—range, precision, and appropriate sizing—are important elements of weapons systems of whatever character that we assess for use against this target set in the future.

Senator ALLARD. I understand that acquisition efforts related to the defeat of hard and deeply buried targets leverage capabilities in many programs and are well coordinated by the Office of Sec-

retary of Defense (OSD). I am a little concerned, however, that this approach may leave the Services, each of which has many competing priorities, in a position in which they might not respond adequately to some of STRATCOM's unique requirements.

Where do you believe these efforts fall short of providing you the complete tool kit you need to strike at the full range of strategic targets?

Admiral ELLIS. Well, as Ambassador Brooks noted when he described the NPR, and as I call it, the Strategic Posture Review, the assumptions predicated that allowed us to draw down the numbers that he described were based to some degree on the creation of advanced conventional capabilities.

While many of these capabilities are still in the developmental or requirements generation phases, it is fair to say that they compete with other priorities that the Services have. My role as a combatant commander is to make my input appropriately heard in the venues that I have. As you are well aware, there is a joint capabilities process that has been defined in the DOD into which I will make inputs and continue to make inputs that address the need for these issues. Then those are reviewed and collated and, with the support of the Secretary and the Chairman, apportioned through guidance to the Services to be dealt with.

One of the challenges we face, of course, is that, just as with nuclear weapons, many of these advanced conventional capabilities are niche capabilities. In other words, they are not intended to be procured in the thousands. They are not intended to be carried on every strike platform in the inventory. They are not intended necessarily to be used against mobile, all-weather targets, and the like. In that context, they sometimes do not compete as well in the analysis of alternatives (AOA) with other systems that may have broader application.

I think it is important for my voice to be heard in articulating how essential these advanced conventional capabilities, even though they may be viewed or defined as niche capabilities, are to advancing our Global Strike capability and our ability to deal with hard and deeply buried targets.

Senator ALLARD. Well, in that regard, do you think the acquisition approach is sound and your unique requirements will be met in a timely way?

Admiral ELLIS. I think the process is sound, sir. It is up to me to continue to be a loud voice and an articulate voice to the extent we can inject that on a regular basis into the consideration of alternatives for the future. I can assure you that within the OSD and his staff there is great support for advancing these capabilities. We have now begun to see a consideration of advanced concepts that might serve us well in the future.

But it is important that we understand the difference between paper programs and real capabilities. There are things that could be addressed in the near term through the Defense Threat Reduction Agency (DTRA) and other organizations that are very able to quickly respond to this. There is also a set of long-term issues that need to be considered as we look to the future and contemplate what a Global Strike capability needs to look like 10 or 20 years hence.

Senator ALLARD. We have talked about hard and deeply buried targets. We use the terms kinetic and non-kinetic, and I wonder if you would go into more detail on the value of both these facets of the effort to defeat hard and deeply buried targets, the other facet being flexible planning.

Admiral ELLIS. Yes, sir. Within the level of classification of this hearing, it is fair to say that kinetic is well understood. We have talked a little bit about that. Ambassador Brooks alluded to it in discussions of concepts that NNSA is beginning to examine. I have talked about it in terms of conventional capabilities that I think are needed for the future. Those are the kinetic things, the things that explode and destroy.

The non-kinetic piece is an opportunity that is just beginning to come into being and deals with issues of disabling from long distances support elements that are necessary to sustain targets or items of interest. Those can include power grids. They can include other capabilities that might be brought down electronically, if you will. There are jamming capabilities, active electronic warfare. There are computer network techniques that are beginning to be explored that consider how we might be able to, at least for a specified period of time, draw down the capabilities of an adversary without the requirements to target them kinetically.

I emphasize that while these are tremendously exciting concepts, they have not delivered yet on the level that would allow me confidently to offer them as an alternative to kinetic solutions at this time. However, I do believe that this is a capability the Nation needs to pursue for the reasons that you have described earlier. I think it certainly is something that, under our IO responsibilities newly assigned to STRATCOM, we are aggressively moving forward with the support of agencies and Services in that effort.

Senator ALLARD. Well, and it raises the threshold, I think, for whether we would have to use nuclear means or not.

Admiral ELLIS. Yes, sir. The focus that Ambassador Brooks noted with regard to the NPR is absolutely essential. What it is tasked to do and what it tasked us to do is provide the Nation's leaders with a much broader range of capabilities to deal with threats to the Nation. All of those have a deterrent character, and they also have a capabilities character. They are not necessarily nuclear in character.

So the point that you raise is absolutely right. The more options, opportunities, or choices that we can offer the Nation's leadership before they have to regrettably consider that last resort nuclear system, the higher we continue to raise the threshold. It is fair to say that the threshold is higher now than it once was. We are working every day to implement the NPR, which in my view will continue to raise that threshold in the years ahead.

Senator ALLARD. Now I would like to call on the ranking member, Senator Nelson, for an opening statement and some questions.

Senator BILL NELSON. To save time, Mr. Chairman, if you will just submit my statement for the record.

Senator ALLARD. Very good. Without objection.

[The prepared statement of Senator Nelson follows:]

## PREPARED STATEMENT BY SENATOR BILL NELSON

Thank you Senator Allard. I would like to join you in welcoming our witnesses. We have many issues to discuss this morning. Senator Allard highlighted some of them, and I would like to highlight a few as well.

I look forward to hearing from Admiral Ellis about his year of change—integrating the former space and strategic commands into one command and taking on a host of new responsibilities under the Unified Command Plan Change Two. Ambassador Brooks, we look forward to hearing from you about the activities of the National Nuclear Security Administration, including the challenge of meeting the security standards associated with the new design basis threat, the progress of the Stockpile Stewardship Program, and the efforts to downsize and modernize the nuclear weapons complex.

In addition, I would hope to be able discuss issues associated with bombers, such as reversing portions of the B-1 retirement plan, maintaining the bomber modernization programs for the B-2 and the B-52, and the work that is beginning on the bombers of the future. What does long-range Global Strike look like in the future?

I would also like to hear from each of our witness the progress being made in implementing the Nuclear Posture Review (NPR) and the Moscow Treaty. What is the progress in reducing the overall size of the nuclear weapons stockpile, not just the number of operationally-deployed nuclear warheads. One additional aspect of the Moscow Treaty that I would like to discuss is how operationally-deployed warheads are going to be counted to achieve the goal of 1,700 to 2,200 deployed warheads by 2012.

Related to the issue of counting, is a recent press report asserting the decision in the NPR to download all of the Minuteman III intercontinental ballistic missiles (ICBMs) to a single warhead configuration is being reconsidered. Such a decision would have a direct impact on the mix of warheads deployed and would most directly impact the number of warheads on Trident submarines.

Last year there we had considerable debate and discussion in the Senate on the Robust Nuclear Earth Penetrator (RNEP), Advanced Concepts Initiative, and the repeal of the ban on research and development (R&D) of nuclear weapons with yields below 5 kilotons, and nuclear test readiness. The RNEP and the Advanced Concept work was routinely described as being studies only and that there were no plans to produce or deploy new or modified nuclear weapons. Clearly this is no longer the case with the RNEP. I would like to hear from both of our witnesses about the capabilities of the RNEP, and understand the military requirements, value, and utility.

We have much more to discuss, so I will conclude by again welcoming our witnesses. This hearing is always interesting.

Thank you Senator Allard.

Senator BILL NELSON. Admiral Ellis, in September of this year, the administration plans to deploy a long-range missile defense system. Are you going to be the person responsible for this defense and also responsible if the defense fails against a real enemy missile?

Admiral ELLIS. Yes, sir.

Senator BILL NELSON. Since you are responsible for the development of the concept of operations (CONOPs) for this missile defense system that will be fielded, what is the process for developing this concept? What are your planning assumptions?

Admiral ELLIS. Thank you, sir. That is a great question. As we discussed in front of the full committee on March 11, the role of STRATCOM, as you describe it, is to take the capabilities that are being developed by General Kadish in the MDA, which might as well be called the Missile Development and Acquisition Agency, and move it into the operational realm as we begin to put this test bed in place over the next—in the months ahead.

The role that I have is to, as you described, define the CONOPs, to begin the training and integration, to provide the command and control capabilities, to ensure that the Services provide well-trained and aware crews, and to ensure that the assumptions with regard

to its employment and weapons release doctrine and those types of things are clearly understood and reviewed prior to this capability beginning to be in place conceptually by the end of this year.

The assumptions that we made are based on sharing the data that has been currently provided through the tests that have been conducted and the simulations that have also been conducted in developing this system. You heard from Mr. Christie and Ron Kadish about the way in which their teams or elements have come together to share that database. Well, STRATCOM also accesses that database to help us understand the capabilities that we are likely to have as this, as the Secretary calls it, rudimentary capability comes on line later this year.

All of those issues help us ensure that we understand realistically what this system is capable of doing in this test mode. We have a process in place that allows us to bring online a limited alert capability at the same time as we continue the spiral development process. This has to occur simultaneously as the MDA continues to move or evolve this system into the forms that it will take in the years ahead.

So we draw on their data. We understand and draw from their experience with legacy systems. We have significant expertise from the Army involved in this, as you are well aware, and draw air defense expertise to make sure, from a doctrinal standpoint, we are asking the right questions. We are under no illusions as to what we will or will not have when the IDO capability comes on line. But we do believe that it will add value to what we have. It will be a capability that is in the field anyway for testing and development and we believe it is appropriate to draw on it to the extent that it can provide capabilities to the Nation to enhance our Nation's security and defense.

Senator BILL NELSON. Well, since you are the one responsible for its success or failure, would you like to see it operationally tested in a combat-like way as soon as possible?

Admiral ELLIS. The continuing testing that Mr. Christie and Ron Kadish are pursuing is, in my view, going as aggressively as is appropriate and prudent. In other words, as capabilities deliver, they are tested and assessed. Changes are immediately made to reflect the lessons that are learned. A system of this scale and complexity is unique in the history of the Nation. It requires a global range, if you will, in order to put all these elements in place.

So in my view, there is a logic in putting it in place where it was intended to operationally serve. So I think from an operational standpoint, that is about as realistic an operational environment as we could expect, the actual sites from which it will be expected to be operated with all of its elements, as you are so well aware, including Fort Greely and Vandenberg and the Shemya Radar Facility and all of those capabilities.

So I think we are putting it into an operational scenario, operational environment, even as we continue to refine and advance the testing. So I think that will enhance significantly the operational character of the tests that will unfold in the years ahead.

Senator BILL NELSON. Admiral, I know something about rockets. If there is a rocket being developed where you have one test and you have four tests canceled over the course of the last year, I do



not think I would want to ride that kind of rocket. Is that not what has happened?

Admiral ELLIS. Well, I cannot speak for Ron Kadish and would not presume to, sir, but my understanding is that the tests have not been canceled. They have been rescheduled, as reflective of the incremental testing program that is underway. In other words, Ron's team, MDA's team, has discerned that there were technical issues, just as we described, that needed to be addressed. They are addressing those. When those are addressed, then the incremental testing program will continue, as indeed elements of it are scheduled to continue this year.

Now clearly, and perhaps optimistically, when those schedules were crafted last year, there was a sense that we might be further along. But as you are well aware, there are technical challenges that have arisen along the way, as there are in any developmental program. Adjustment of the test program to reflect the readiness to do those testings, I think, is not inappropriate.

Senator BILL NELSON. So you, as the operational officer in charge, are satisfied with the way that they are going to turn over an operational system to you on a major weapons system with the amount of testing and so-called independent testing that has occurred thus far.

Admiral ELLIS. Well, if they were sitting here with me, I do not think either Mr. Christie or Ron Kadish or I would say that any of us are ever satisfied, and I do not think that is the right term. We understand where we are in terms of system maturity. We understand the elements of the system that have been tested, boosters and kill vehicles and radars along the way. We understand how they are being brought together for this IDO capability. That is where we will be when the first of these elements are put into place, or the last of them are put into place, to create this system sometime later this year in all likelihood.

So that is the process we have. We are assessing, fairly candidly with the help of MDA and Operational Test and Evaluation (OT&E), what capabilities that really represents. In that context, then, we will craft, as you noted, the CONOPs and the procedures for its employment in support of the Nation's security.

Senator BILL NELSON. I would not want to be in your shoes to accept the operational responsibility for something that had not been tested any more than this. In wartime, we have to do whatever we have to do. I am not sitting here as an opponent of national missile defense, but I am sitting here as someone who has to ask the hard questions. How can you make something operational that has not been properly researched, developed, and tested? That is the question that I will continue to ask.

The Air Force has established two offices to study options for long-range strike options. Is STRATCOM fully engaged with the Air Force effort to study options and conduct an AOA?

Admiral ELLIS. Yes, sir, we are. Well, all of our unified commands are joint commands. My deputy actually is an Air Force three-star officer and has attended some of those sessions. We are working with each of the Services as they examine concepts, as I discussed in my dialogue with Senator Allard, that might serve our long-range strike needs for the future.

Senator BILL NELSON. Do you think that manned long-range bombers should be a part of the long-range strike capability?

Admiral ELLIS. I do not think we know the answer to all of that yet, sir. What I am supporting is broad consideration of all concepts. Some of them can employ modifications to existing systems, conventional in character. Some of them can employ concepts that perhaps are long dwell unmanned aerial vehicles (UAVs) that can orbit in a target area with high-speed weapons. Manned bombers are certainly something that needs to be brought into the equation.

The issue we have to avoid, I think, is we do not want to get locked into merely sequential procurement of what we already have without an honest and dispassionate assessment of what the future and what technology can bring us. While I am not in any position to give you the answer, STRATCOM continues to fully support the careful study of all options that might contribute to this capability.

Senator BILL NELSON. One of the options being considered is a bomber variant of the F-22. What do you think about that?

Admiral ELLIS. Well, I would have to see the specifications on it and what the tradeoffs are with regard to—as a pilot myself, and I know you understand, there are elements that come with manned platforms that are different than those that come with unmanned. There are range issues and refueling and support requirements and what kind of environment it will be considered or designed to operate from, an air defense environment and the like.

So again, I do not think it is possible right now, absent completion of these studies, to pick an answer. But I think all of them ought to be put on the table in a fair and objective process and weighed against one another to satisfy the Nation's security needs. This is again one of those things that is inevitably going to have to compete with other requirements. There is certainly the view that we are not going to be able to buy newer versions of everything we have, nor should we. We ought to consider how we can best meet this need in the future.

Senator BILL NELSON. What about other long-range strike options, such as the Falcon?

Admiral ELLIS. We believe that that, too, is one that offers promise in terms of the criteria that I identified with Senator Allard a short time ago. In other words, we are looking for something that has long range. We are looking for something that has speed of response. We are looking for something that has precision and lethality, if we decide to use it.

Certainly, the Falcon has promise, although it is an evolving concept potentially in each of those areas.

Senator BILL NELSON. The Secretary of Defense told the House Armed Services Committee to develop and provide a CONOP for a Common Arrow Vehicle (CAV), "that precludes any perception of CAV launch intent prior to conducting any development launches of CAV." Then Peter Teets also submitted a report. What do you think about that? Do you think it would be subject to the Strategic Arms Reduction Treaty (START)?

Admiral ELLIS. Not as currently structured, sir. The START has some exclusions on space launch facilities and areas of interest. So their issues would have to be clearly reviewed to make sure they are treaty compliant. There are now procedures for information ex-

change amongst interested parties with regard to schedule and intent.

So I would not say that those policy issues are insurmountable obstacles to consideration of the value of a CAV concept, as we examine future concepts.

Senator BILL NELSON. Did you already talk with the chairman about the process by which there would be a requirement for a new nuclear weapon to be developed?

Admiral ELLIS. No, sir. We did not address that specifically.

Senator BILL NELSON. Well, would this process be the same for a modification of an existing nuclear weapon to meet a military purpose?

Admiral ELLIS. Yes, sir. The essential elements would be the same up to and including congressional oversight in any process that deals with modification to an existing nuclear capability.

Senator BILL NELSON. For both of you, the NNSA plans \$135 million to complete the studies on RNEP. This is substantially more than the \$45 million that was announced back in 2003. Why has the cost grown so substantially?

Ambassador BROOKS. I think the \$135 million figure is based on a misreading of what we put in our out-year project. Some of that is completion of study. Some of that, as I alluded to in my opening statement, is a place holder in case, at the completion of the study, the President and Congress elect to go forward.

I think that the total cost of the study is closer to \$70 million, although I will correct that for the record if I am wrong. The cost has gone up in part because we have discovered the problem is more complex. We have involved more of the weapons complex. In looking at it, we had not envisioned deeply involving, for example, the Y12 Plant, but we have. I can give you a more detailed answer for the record, if that is all right, sir.

Senator BILL NELSON. Okay, I would appreciate that. I understand that in your planning you have to put in a certain amount of padding, which is just good planning.

[The information referred to follows:]

We never expected the RNEP Phase 6.2/2A study to cost \$135 million, but we did not make it clear in our fiscal year 2005 submission. When we formulated the fiscal year 2005 request, we anticipated the cost of the study to be approximately \$71 million. These costs can be attributed to: congressionally imposed funding reductions and delays (reporting requirements), addition of the production plants to help assess design feasibility, and an independent review of competing designs.

As a result of the 50-percent funding reduction in fiscal year 2004 for the RNEP, as well as a better understanding of the RNEP study and the need to balance priorities across the nuclear complex, we are studying the funding profile for RNEP in fiscal year 2006 and beyond.

Senator ALLARD. I think here on this issue, you are kind of caught between a rock and a hard spot, Senator Nelson, on this. If you do not put in the money, then somehow or other they think you are hiding it. If you do put it in and you are straightforward, then you can be accused of trying.

I looked at this figure, too, and that obviously sticks out there. On the other hand, I think we need to have some estimate in case they decide to move ahead with that, about where those future costs would be. I think this had quite a bit of discussion in the hearing yesterday. Is that right?

Ambassador BROOKS. Yes, sir, Mr. Chairman, it did. Our view was twofold. First, that our interpretation of what Congress expected and what we need internally when we went to meaningfully estimate out-year budgets, was that we ought to do the very best we can. Second, we thought that we are, after all, preserving an option for the President. If the President has no option within your budget, that seemed to us inappropriate. So that is why we chose to display these figures in the 5-year projection.

But, of course, a projection is a projection. We decide on spending a year at a time. But in doing that, it is appropriate, it seemed to us, for Congress to understand what the future projections might be. But I stress again, we cannot get to that future without an affirmative decision by Congress, quite apart from the appropriations process.

Senator ALLARD. Senator Nelson, I would like to have this hearing pretty well wrapped up by 11:30. I thought at this point in time we would exchange at 10-minute intervals, if that is okay with you.

Senator BILL NELSON. Okay. I have a bunch of constituents waiting on me.

Senator ALLARD. Okay.

Senator BILL NELSON. Do you think I could finish a few more questions?

Senator ALLARD. Go ahead, and then I will wrap up behind that. We will accommodate you on that.

Senator BILL NELSON. Good.

You have in your 2005 budget request the plans to spend \$135 million to complete the phase 6.2/6.2A study on the RNEP. This is substantially more than was announced in fiscal year 2003 for the RNEP. It is on your congressional budget. You spell out with specificity in the years ahead the cumulative percentage progress in completing the phase such-and-such activities of the RNEP. So in 2004, complete 17 percent of scheduled RNEP; 2005, complete 56 percent of RNEP; 2006, complete 100 percent of scheduled RNEP.

Ambassador BROOKS. Yes, sir. But, Senator, that is true. Let me try again. The number you are looking at for 2006 includes some money to complete the study, the phase 6.2A study, and some other money to move into phase 6.3. That additional money could not be spent without a congressional declaration.

So completing the phase 6.2A study will not cost \$135 million. It will cost more than the \$45 million we told you last year. But it will not cost \$135 million. If the budget document leads you to a different impression, then we did a bad job of drafting the budget document. I will correct it both for the record and for other committees.

Senator BILL NELSON. Admiral Ellis, is it your conclusion that the nuclear weapons stockpile remains safe, secure, and reliable, and that there is no need to conduct an underground nuclear weapons test?

Admiral ELLIS. Yes, sir, that is my conclusion.

Senator BILL NELSON. All right.

Ambassador, does the NNSA have adequate funding in its 2005 budget to allow it to meet the new security requirements arising from the new Design Basis Threat (DBT) at the end of 2006?

Ambassador BROOKS. Yes, sir, it does. I believe that we may need additional 2004 money. I anticipate there will be a reprogramming request submitted to this and other committees in the relatively near future.

Senator BILL NELSON. So you think it makes sense maybe to have some of those improvements sooner.

Ambassador BROOKS. Yes, sir. For some of them, it is not just a question of making sense. You would like everything soon. But we put in place mitigating measures. Some of those mitigating measures are simply more expensive. Mitigation usually is a euphemism for putting more guards in places by increasing overtime.

Senator BILL NELSON. Do you need any help from us with regard to transportation?

Ambassador BROOKS. I am in a slightly awkward position, because the administration has not completely finished the reprogramming request. If there were a reprogramming request about to come up, I would expect that there is a good chance that we would have a few million dollars for transportation in order to support emptying Hanford of plutonium on the schedule that the department would like to make.

Senator BILL NELSON. Admiral, there is a fellow named Dr. Younger that said we are taking a fundamentally new look, a clean sheet of paper look, at what to do when we need to defend the country from a strategic perspective. Do you agree with that?

Admiral ELLIS. Yes, sir. As I alluded to earlier, the concepts that now are part of the new STRATCOM broadened the concept of what is strategic in character. I believe that we need to understand and appreciate that much of what we do adds to the deterrent value of our Nation's security efforts, including ISR, the missile defense piece, and our advanced and overwhelming conventional capabilities, as they evolve.

So there are many contributors to deterrence. I think that is an appropriate way to view it. Indeed, the fundamental purpose of the NPR was to broaden the number of options to enhance our deterrence and to raise the nuclear threshold.

Senator BILL NELSON. Do you support conventional weapons, warheads, on deployed ICBMs?

Admiral ELLIS. I support consideration of that as part of a broader address, all of the advanced conventional capabilities, as I said earlier, because I think there are elements dealing with range and response times that are going to increasingly challenge us into the future. That, coupled with accuracy and effectiveness, some of those could be dealt with by a construct that you described, just as they could be dealt with by other concepts that are also under consideration.

Senator BILL NELSON. Well, Dr. Younger was also saying he was not talking about 10-year development cycles. He was talking about 90 days. What do you think about his ideas of 90-day development cycles? What would be the effect on the ground in the United States if such 90-day time frame would be put on conventional warhead on a Minuteman II ICBM?

Admiral ELLIS. Well, not understanding the context in which Steve Younger made those remarks, I cannot approach it directly. If he was talking about the challenges we face with long develop-

ment times and how long it takes us to take a concept from conception to delivery, then I certainly am empathetic with shortening those time lines.

I do believe, as I addressed with the chairman, that there are near-term issues that can be addressed very quickly by employing modifications of existing systems and the like or there are then also longer term efforts that will have to play out as technologies and capabilities need to be reviewed and assessed. I think Steve Younger's view, I infer from those remarks, was that he could do it on the shorter end rather than the longer end. Whether 90 days or not is the right value, I could not say, sir.

Senator BILL NELSON. There is some indication from Pratt Whitney that the replacement program may be delayed. Tell us about that.

Admiral ELLIS. Yes, sir. As they may have told you, they have had two incidents at their Pratt Whitney facility in San Jose with regard to propellant mixing in support of the Minuteman program and others that have forced them, in concert with the overarching corporate leadership, to consider other alternatives. They have now done that. They have shifted the location in which that propellant element for the first stage of the Minuteman is mixed to a new facility run by ATK in Utah.

They have not recaptured schedule. They have lost time as a result of that. However, I have spoken personally with the corporate leadership, and they believe that by the end of the year, they will be back in production for the Propulsion Reliability Program (PRP), which is the final upgrade to the Minuteman III process to deal with some long-identified technical challenges.

Senator BILL NELSON. Replacing W62 with W87, I understand that is being reconsidered.

Admiral ELLIS. That is news to me, sir.

Ambassador BROOKS. That is news to me, too, and it is very hard for me to believe that it would be reconsidered without one of us being involved in it.

Admiral ELLIS. The rationale for that was because of the modern capabilities that are associated with the W87. It made sense to do that as the Peacekeeper force was retiring, and that process is well underway. So it would seem to be a logical thing to do to employ the newer capabilities over the longer term by transferring it to the Minuteman system. But I will have to take that one for the record.

[The information referred to follows:]

During a Strategic Forces Subcommittee hearing on March 25, 2004, Admiral Ellis provided Senator Nelson with more details. The exchange follows:

Senator BILL NELSON. Yesterday, Admiral Ellis, we had talked in the full committee about the Minuteman III. The Nuclear Posture Review (NPR) and the Moscow Treaty achieved the bulk of the reductions in the deployed nuclear warheads by retiring the Peacekeeper and taking the Multiple Independently-Targetable Reentry Vehicles (MIRVs), de-MIRVing the Minuteman IIIs, so that each Minuteman III has one instead of multiple warheads.

There was a recent press report that suggested that the decision to have one warhead on each of the 500 Minuteman IIIs was being reconsidered. Is there any truth to that press report?

Admiral ELLIS. I am aware of no reconsideration of that, sir, and I believe that the modernization program of which we spoke yesterday is still on track as you and I understand it.

Senator BILL NELSON. Is there any plan to retain MIRVed Minuteman IIIs?

Admiral ELLIS. I am not aware of any program at all, sir, in that construct. Now, as with all posture and policy reviews, someone may have hypothesized as we look at alternative structures for the future and what combination of reduced vehicle numbers could allow us to do that. I can assure you that there is nothing in the program of record that alters the information that either you or I have been given about the way ahead for the program with regard to Minuteman III.

Ambassador BROOKS. Yes, sir. But I am familiar with most thinking on future nuclear weapons. There may be somebody somewhere who is thinking it, because there are always people somewhere who are thinking everything. That is not under active consideration at any significant level in the DOD or DOE.

Senator BILL NELSON. Mr. Ambassador, what is the impact on the repeal of the ban on R&D of new yield nuclear weapons? How does that impact on the U.S. nonproliferation goals?

Ambassador BROOKS. I believe it does not impact at all, sir. Congress asked us for a report which sets forth our rationale in some detail. I expect that report to be here within a few days. But let me walk through the basic conclusions.

First of all, look at people who might wish to acquire nuclear capabilities. Start with the most benign ones, our friends and allies. Our friends and allies want to know that we are acting to maintain the reliability and security of our forces. So they are not threatened by this.

Terrorists do not care what we do, because they have motivations of their own. There is no particular evidence that the rogue states are influenced one way or the other by whether we are thinking about any particular form of weapon. After all, over the last 10 years, we have cut forces. We have taken forces off alert. We have ended testing. It has not appeared to affect the Iranians and the North Koreans of the world.

So the remaining question is that large body of states that helped form the nonproliferation norm that is codified in the NPR. There, I believe, the repeal of the ban does not make any difference. What we choose to do with it makes a difference. If, as some in the press have claimed, we were seeking to develop low-yield weapons and blur the distinction between conventional and nuclear weapons, I think that would affect our nonproliferation goals. Since we are not planning to do any of those things, I do not think there is any impact on them, sir.

Senator BILL NELSON. Mr. Chairman, I have a couple more questions. I will submit them for the record, and we can get answers.

I would just like the two of you all to give us some assurance. Our committee staff has been trying with no success for over a year to get a briefing on the end-to-end review, which was a joint DOD/DOE review. It has been completed for 2 years. Will you all arrange a briefing for this subcommittee and our staff?

Admiral ELLIS. I will certainly convey that request to the DOD, sir.

Senator BILL NELSON. To whom?

Admiral ELLIS. To the Secretary and the staff. Yes, sir.

Senator BILL NELSON. All right. Will you report back directly to me?

Admiral ELLIS. Yes, sir.

Senator BILL NELSON. Okay. On the answer?

Admiral ELLIS. Yes, sir.

Senator BILL NELSON. All right. Mr. Chairman, if we can submit it for the record, this is the chart on the national missile defense testing showing that, in 2003, the test planned after the decision to deploy. In 2003, you had a failed test. Then you had three tests that were canceled. In 2004, you had one test and three additional tests canceled.

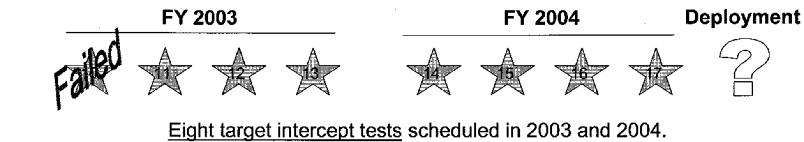
For the life of me, it is hard for me to understand, even as someone who would like to see a national missile defense system work, because that gives us certain strategic advantages. I do not know if you have that kind of testing schedule and then it is canceled, how you can say that it is ready to go operationally and put it in the field.

You do not have to answer that.

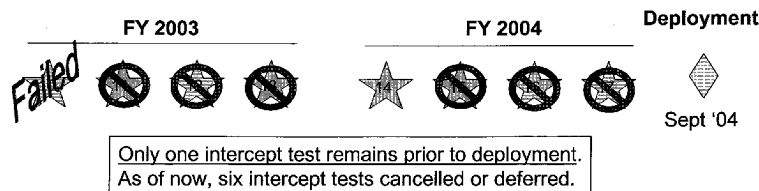
[The information referred to follows:]

### National Missile Defense Testing is Sen. Levin Inadequate

#### Tests Planned Prior to the President's 12/02 Decision to Deploy:



#### Tests Planned After to the President's Decision to Deploy:



Admiral ELLIS. No, sir. Well, I think I have given you the only answer that I can, that while that snapshot is certainly, I am sure, accurate for the 2-year slice, the broader continuum of evolutionary testing started before that and will continue beyond that at a pace that is as rapid as the technology and system supports. I am committed to that and I know Ron Kadish and the MDA are committed to that, and so are our other contractors and folks who are proceeding with the system.

We do not want testing in advance of readiness for testing. I think that is the element that is reflected there.

Senator BILL NELSON. If you were Ron Kadish and running that program, you would be satisfied in doing exactly what he is doing?



Admiral ELLIS. I would be satisfied that he is pursuing this as aggressively as it can possibly be done given the level of technology and the time line that we are on. Yes, sir.

Senator ALLARD. Senator Nelson, I have a couple questions I would like to ask in response to that. Maybe you want to be here while I ask those questions. But, we have no defense.

Senator BILL NELSON. I would accept your gracious opportunity, but I have these people out there waiting on me.

Senator ALLARD. Very good. Well, we will go ahead.

Senator BILL NELSON. Thank you so much.

Senator ALLARD. We have no defenses against long-range ballistic missile development today. I have a series of short questions in regard to that. We had a whole hearing in the full committee on missile defense. I hate to tromp over the same issues again. But just for this record and this subcommittee, do you support the use of the missile defense test bed to provide limited operational capability? Yes or no?

Admiral ELLIS. Yes, sir.

Senator ALLARD. Does such a capability contribute to deterrence? Yes or no?

Admiral ELLIS. Absolutely.

Senator ALLARD. Does such a capability provide a useful strategic option?

Admiral ELLIS. Yes, it does.

Senator ALLARD. Does such a capability raise the nuclear threshold?

Admiral ELLIS. It certainly does.

Senator ALLARD. Thank you.

I want to clarify for the record the funding issue that we talked about, Ambassador Brooks. I want this to be clear. Has the NNSA decided to proceed to phase 6.3 engineering development of the RNEP?

Ambassador BROOKS. No, sir.

Senator ALLARD. Thank you for your question.

I want to go back to the nuclear weapons stockpile and just ask a few questions in regard to that for both you, Admiral Ellis and Ambassador Brooks. Following the NPR, which envisioned reducing our nuclear weapons stockpile from around 6,000 nuclear warheads to between 1,700 and 2,200 operationally-deployed nuclear weapons, the Appropriations Committee has included language in their bill requiring the nuclear stockpile to be included with the fiscal year 2005 budget request.

To date, the plan has not been delivered. When do you anticipate the plan will be delivered?

Ambassador BROOKS. I think the Secretary of Defense testified that it would be delivered "in the spring." It is being worked at the highest levels. On the other hand, there is probably nothing more important than getting this right. It has taken us longer to get it right than we anticipated, and we regret the delay. I am very reluctant to give you a specific date that I cannot deliver on.

Senator ALLARD. There are a number of people reviewing it, a number of offices reviewing it, I understand.

Ambassador BROOKS. Well, yes, sir. But more importantly, the importance of this will require personal involvement by both my

cabinet officer and the Secretary of Defense, and ultimately by the President.

Senator ALLARD. I understand it is over at the DOD now. They are reviewing it.

Ambassador BROOKS. Yes, sir. It is being worked actively.

Senator ALLARD. Okay. Funding for the nuclear weapons initiatives were reduced by the House Energy and Water Appropriations Subcommittee until the nuclear stockpile plan is received. That subcommittee asserted that NNSA should not be moving forward with initiatives when they do not know the size and character of the stockpile. Is that a proper characterization?

Ambassador BROOKS. That is certainly a proper characterization of what the committee did.

Senator ALLARD. Well, what about their allegation? Is that a proper characterization?

Ambassador BROOKS. What the committee did was two things. They fenced off certain parts of the advanced concepts money until we had presented this plan. They suggested it would be inappropriate to make any further decisions on the MPF, including a selection of the site for it, until the plan had been submitted.

That is part of the normal process of congressional oversight. With regard to the MPF, the committee also reduced the funding. With that reduced funding, we are focusing on design aspects that will be required wherever the site selection leads us.

I do not believe that that step alone is hampering the program. Naturally, I would prefer to have those restrictions off. I would prefer to have the plan the committee wanted up here, too.

Senator ALLARD. Let me ask this next question then. Can the NNSA and DOD do research and conduct activities on the nuclear weapons initiatives without a complete nuclear weapons stockpile plan?

Ambassador BROOKS. We are allowed to use \$2 million of the \$6 million that was provided without the stockpile plan. The remaining \$4 million has to wait until 90 days after the stockpile plan has been submitted.

Senator ALLARD. You are kind of focusing on the restriction there.

Admiral ELLIS. Yes, sir. The fact of the matter is we certainly have a number of initiatives that can proceed comfortably without a precise definition of stockpile character at decades—so that is a fair statement. We do not need that in that level of detail or specificity in order to continue to advance the issues in which we have a shared interest.

Ambassador BROOKS. I will follow up.

Senator ALLARD. Do you want to amend your statement here a little bit?

Ambassador BROOKS. Yes, sir. [Laughter.]

Senator ALLARD. We will strike that. [Laughter.]

Ambassador BROOKS. The kind of thinking that we do under the Advanced Concepts Initiative is not directly related to the specific future size of the stockpile. So there is no direct need in order to do that thinking for us to settle on a future stockpile plan. There are simply different parts of the intellectual spectrum.

Senator ALLARD. What activities are appropriate for NNSA to proceed with, based on current assumptions of the nuclear weapons stockpile plan?

Ambassador BROOKS. I believe that it is appropriate for us to continue Advanced Concepts Initiatives because we need to both maintain a robust intellectual capability at our design labs and also make sure that as we get to a smaller stockpile we are not passing up any opportunities to improve safety and security and reliability.

Senator ALLARD. Ambassador, I would think world events would have some impact on your plan, as we see a change in the global landscape and the defense capabilities improve.

Ambassador BROOKS. That is certainly true. The most obvious example is one we have already discussed, the RNEP. We see, as we have submitted to Congress, a change in the global landscape in that more and more countries, some of whom we may need to deter, are using the option of hardening and deeply burying targets. So that makes it appropriate for us to think about how the Nation responds to it both in a non-nuclear sense, as Admiral Ellis described, and in a nuclear sense.

We also believe it is important for us to continue with the so-called responsive infrastructure. Because as the world changes, it may be necessary to alter what we have deployed. One way to do that is to be able to respond not from fully operational weapons in warehouses, but from an infrastructure capability.

We think it is important to continue all of the efforts at life extension and stockpile stewardship, because, once again, with a smaller force and no prospect of significant new weapons, we have to extend the life of current weapons. We have to make sure that they are effective and reliable. That is the reason Congress has been, and we are grateful for it, supportive of our stockpile stewardship efforts.

Senator ALLARD. By having an operating MPF, an active Advanced Concept research program, and enhanced test readiness and revitalized infrastructure, will not the United States be able to reduce the quantities of nuclear weapons even further in a future nuclear weapons stockpile plan?

Ambassador BROOKS. Absolutely, sir.

Senator Allard. Thank you.

The Science-Based Stockpile Stewardship Program was designed to use scientific tools and technology to maintain a reliable, safe, and secure nuclear weapons stockpile without the need for underground nuclear tests. Can you please provide an update on how the Science-Based Stockpile Stewardship Program is proceeding?

Ambassador BROOKS. It is proceeding well. The program includes a large number of components. We are working on each of them.

Senator ALLARD. What is the biggest challenge?

Ambassador BROOKS. I think the biggest challenge is to make sure that we find ways to gather data about conditions that do not exist in nature on Earth except in a nuclear explosion. So, for example, we will start stockpile stewardship experiments at the National Emission Facility later this year. We are moving forward to use that facility more and more over the coming decades to gather data that cannot be gathered any other way.

We are continuing a program of so-called subcritical experiments. We are working to overcome some of the problems with the dual axis radiography facility at Los Alamos so that we can gather data on the phenomenon of implosions. It is probably a mistake to look at a single silver bullet. The idea is to have a robust array of tools, which in the aggregate will provide a good scientific, theoretical scientific basis for what has historically been something between an empirical science and an art.

Senator ALLARD. To what extent can the Science-Based Stockpile Stewardship Program help to certify reliability, safety, and security of our nuclear stockpile?

Ambassador BROOKS. Well, we believe it is crucial to that certification. We see no reason at the moment to foresee a time when we would not be able to conduct that certification. But the enhanced test readiness is necessary as a hedge if we ever find that we cannot certify without an actual experiment involving nuclear yield.

Senator ALLARD. For how long do you estimate we can continue to certify the nuclear stockpile as reliable, safe, and secure without the need to conduct a full-scale underground nuclear test?

Ambassador BROOKS. I do not think there is a responsible answer to that. I cannot see a time when we will not be. But we look at this in a very formal, very rigorous way. Each year, the laboratory directors look at it. Admiral Ellis looks at it separately. What we can tell you for sure is we do not need it today. What we can tell you is we do not see any reason to believe we will need it tomorrow. But this is something you have to look at continuously because of the complexity of the phenomenon involved.

Senator ALLARD. Admiral Ellis, how important are the nuclear weapons initiatives, including RNEP, the MPF, and enhanced test readress program to you?

Admiral ELLIS. Well, as I addressed in my opening remarks, Mr. Chairman, as you fully understand, we partner with NNSA through each of these elements. While some of them are more directly linked to satisfying our military needs—and RNEP's consideration as one of several alternatives to deal with hard and deeply buried targets is an example of that—it is also fair to say that the ability to understand and to ensure the safety and security of the stockpile in the future is absolutely an essential element to deterrence in and of itself.

In other words, we have to have confidence in this stockpile in order to assure that potential adversaries might have the same kind of confidence and to enable the deterrent character that is the primary focus of the stockpile. So clearly, Ambassador Brooks' success and the success of the great team that he leads is an essential part of our shared collective national success in establishing a credible arsenal, be it of smaller size and more modern focus to better meet the national security challenges that confront us.

Senator ALLARD. Admiral, I would like to follow up on the command and control. Strategic command and control in the not so recent past was oriented toward the need to communicate in very stressful conditions orders related to planned nuclear strike options for nuclear weapons delivery platforms. The broader range of missions and weapons and platforms for which your command now has considerable responsibilities within the new triad clearly requires

more flexible command and control. Would you assess the progress being made in achieving this flexibility? What command and control capabilities will you need in the future?

Admiral ELLIS. Yes, sir. I would be delighted. In fact, as you are well aware, sir, some of this almost actually bleeds over into tomorrow's hearing, because many of these are spaced-based capabilities and the like, as we deal with specific satellite communications capabilities and the like. But in a broader sense, it is clear that effective command and control will remain an essential element of not just oversight of the nuclear capabilities, the deterrent capabilities that we have had for years, but more and more the oversight and employment of the global or the newer definition of strategic capabilities that we face for the future.

Our challenge now is to make sure that we are in concert with the guidance out of the OSD. John Stenbit articulated a lot about the Global Information Grid (GIG) and the standardization of the architecture and the formats that are necessary for us to be a part of that.

We are working at our level to establish a national command and control capability that better serves the needs of the Nation's combatant commanders down to the theater commander level. We are partnering with Joint Forces Command (JFCOM), who has the responsibility for effective command and control at the theater level and below. The intent is to provide a seamless GIG command and control capability for all of our forces.

The elements that are important to me are in our command and control information system that we are modernizing. How do we integrate that with the BMD capabilities and their command and control battle management system and the like? So we bring those together in an effective way, make them part of that larger architecture that Mr. Stenbit used to describe. They collectively serve the national command and control needs rather than the classic version of nuclear command and control. It is now in reality a national command and control system. We are very much actively involved in supporting all of those efforts.

Senator ALLARD. Now I understand that the Air Force has stood up a long-range strike office to develop an AOA for the Joint Requirements Oversight Council (JROC) and another office to look at the future bombers. How are you in your command involved in these efforts?

Admiral ELLIS. Well, as I mentioned in the earlier question, sir, we are very actively involved in that. The JROC is using a new process to validate requirements. It is called the Joint Capabilities Integration and Development System (JCIDS). It still smells like a rose, but it is the JCIDS.

Senator ALLARD. It is hard to keep up with all these new acronyms.

Admiral ELLIS. Yes, sir, it is, even for those of us in uniform. The process is designed to be more responsive. In some cases, we are specifically tasked to identify those requirements for capabilities that are ours, such as long-range Global Strike, for example. My command is responsible for delivering by the end of this year a statement of the requirements for that.

At the action level, in reality, my Air Force staff is very much involved with the Air Force as they begin to explore these concepts. We participate in many of their armament summits and things of this nature. We understand the value of that expertise and access it wherever we find it. We do not believe that perfect knowledge or insight resides solely in STRATCOM. We need to go where others are aggressively trying to work these problems in support of us. So we are very much involved, Mr. Chairman.

Senator ALLARD. I just wanted to give Ambassador Brooks a little bit of a break here, Admiral Ellis.

Admiral ELLIS. That is fine.

Senator ALLARD. So I will give him a little bit of a break, and then get back to him. Ambassador, we were talking about this Science-Based Stockpile Stewardship Program. The National Ignition Facility (NIF) is a key facility in the Science-Based Stockpile Stewardship Program. When fully constructed, it will allow weapons scientists to aim 192 lasers at a BB-sized target simulating the temperatures and conditions of a nuclear explosion but at a much smaller scale.

Can you report to us on the progress of the NIF?

Ambassador BROOKS. Yes, sir. We are generally pleased with the progress. Several years ago, there were management issues there. But in recent years, the NIF has been consistently meeting milestones ahead of schedule. It is today the most powerful laser in the world with only 4 of those 192 beams operating. We will begin Stockpile Stewardship experiments on it later this year.

We had thought that we might need to delay the actual ignition in the NIF from 2010 to 2014. But a recent analysis that Dr. Beckner has conducted has allowed to recover the 2010 date for ignition. While ignition is important, and it is important to Stockpile Stewardship, the experiments we conduct between now and 2010 will also be important.

So I believe this facility is a clear example of a success. It is the largest single stockpile stewardship project we have, though and so it requires fairly constant supervision. But right now, they are doing a remarkable job. I mean, 3 million workdays without a loss.

Senator ALLARD. Well, that is good news. You are under budget and ahead of schedule. We always like to hear that on this side of the table. You say that it is extremely important to the Science-Based Stockpile Stewardship Program, correct?

Ambassador BROOKS. Yes, sir.

Senator ALLARD. The MPF would provide the United States the capability to manufacture plutonium pits for our nuclear weapons stockpile. The United States is the only nuclear nation without this capability. If the pit of a nuclear warhead-type failed, either due to a design flaw or an aging defect, what would happen to that class of weapons if we do not have an MPF?

Ambassador BROOKS. Well, it depends very much on the nature of the failure. It could be something that would not meet its military characteristics. It could, I guess, conceptually be something that would no longer have any utility. What we know—and it is important to distinguish between what we know and what we do not—is that plutonium is a very difficult metal to fully understand with its multiple phases.

We know that it ages due to radioactive decay, which changes the nature of the metallurgy. We know that when you attempt to initiate a nuclear explosion, getting things exactly right—I am being a little fuzzy because of classification—is important.

What we do not know is how long plutonium can age before the problems become significant enough so that it effects military characteristics. Our analysis suggests a time before 45 and 60 years. So we need to be able to establish a capability to remanufacture all the pits we are going to exchange before they get to that time frame.

The only capability we have now is an interim capability thus far focused only on a single warhead, the W88 at Los Alamos. Los Alamos will manufacture the first actual Stockpile War Reserve W88 in 2007. We have learned, I think the director of Los Alamos started to say, about 43 separate technical processes that had to be carefully qualified. Some of these are a little bit of an art. Some of them are more of an engineering science.

So we march forward with understanding how we will need to design an MPF. We assume that there is some risk in any significant delay to the current design of the MPF. Some would argue, the Foster Panel you mentioned earlier, that we are accepting unacceptable risk by not having it in operation until the next of the next decade. We are comfortable with the schedule that we have set forth. We would not be comfortable with a significant delay.

Senator ALLARD. One of the issues that has always been important to me is security.

Ambassador BROOKS. Yes, sir.

Senator ALLARD. My colleague, Senator Nelson, had a security question for Admiral Ellis. I now have a security question for you, Ambassador. After the September 11 attacks, the Secretary of Energy increased the security requirements for facilities across the nuclear weapons complex. The security requirements for the DOE are known as a DBT. Are you confident the facilities across the nuclear weapons complex will be able to meet the security requirements of the new DBT by the target date of 2006?

Ambassador BROOKS. Yes, I am. Equally important, I am confident that nuclear materials are not at risk right now.

Senator ALLARD. Very good. Thank you.

Admiral ELLIS. If I might add to that, sir?

Senator ALLARD. Admiral Ellis.

Admiral ELLIS. When I answered very quickly Senator Nelson's question prior to his departure, I did not want to infer that we, too, are not continuing to review and upgrade the security associated with our end of the nuclear stockpile storage. That is, of course, at the launch facilities, in terms of the ICBM, the ports where the SSBNs deploy from, and our own capabilities at the bomber bases and weapons storage sites.

So we, too, have adopted a new DBT. We are continuing to upgrade what is reflective of the new security environment. It is not fair to say that everything has been done that needs to be done. But it is fair to say that we have had a very aggressive scrub of this, a great deal additionally has been done by the Services, and a clear roadmap and way ahead has been identified. We will con-

tinue to enhance our capability to deal with an increasingly robust postulated threat in the years ahead.

So we, too, are focused on that. We are not sitting on our laurels here. We understand there is work that needs to be done, and we are pursuing that.

Senator ALLARD. Well, thank you. I have one question, and then we will draw this hearing to a close.

Admiral Ellis, every year this committee asks the Services for their unfunded priorities lists. As you review programs that meet STRATCOM priorities, can you identify any particular acquisition efforts that you believe have not been adequately resources?

Admiral ELLIS. We have to be very careful, understanding the balance that inevitably is a part of the process, both here with the committee and the Hill, but also within the DOD. I highlighted some issues earlier about the advanced conventional capabilities and the things that are an important part of understanding this new triad, that sometimes I think we use that phrase a bit too glibly. We do not fully articulate what the elements of that are.

In addition to the classic nuclear piece were, of course, the advanced conventional capabilities that need to mature and fairly rapidly in order to supplement and complement and enable that draw-down that you discussed. The infrastructure piece that Ambassador Brooks is responsible for, the missile defense capability, as the defensive element, for the first time the Nation will now have a defensive element to its deterrent posture that we have not had before. Then there is the very insightful question that you asked me, about the command and control capabilities to knit all that together as an effective whole.

If I had some areas in which I would like to focus, it would be on those elements of the new triad, to ensure that we do not just focus on one corner of that, because it has to grow as an entity, not as an individual element. So while there is attention being paid to it, we need to continue to refine the balance of those elements of that new triad in order to continue to enhance the Nation's deterrent capabilities for, as I said, a much different future.

Senator ALLARD. Okay. I want to thank you both for showing up to testify before the subcommittee. We do have some other questions we will submit to you that we did not have time to cover this morning. But if you could respond to those promptly and get those responses back to this committee within a short period of time, we would certainly appreciate it.

Again, thank you for your dedication and for the great job you are doing. With that, we will call the subcommittee to a close.

[Questions for the record with answers supplied follow:]

#### QUESTIONS SUBMITTED BY SENATOR WAYNE ALLARD

##### LEGACY COMMAND AND CONTROL SYSTEMS

1. Senator ALLARD. Admiral Ellis, what is the status of legacy command and control (C<sup>2</sup>) systems? Will these systems be sustained and serve as the technical basis for secure nuclear command in the future, or will they be replaced as part of the more general effort to upgrade C<sup>2</sup> capabilities?

Admiral ELLIS. I respectfully defer to Ambassador Brooks on specifics related to the National Nuclear Security Agency's (NNSA) fiscal year 2005 budget request.

Over the last few years, knowing that Net Centric operations were on the horizon, we have and continue to move forward to modernize our C<sup>2</sup> systems to better sup-



port IT-based hardware and software. United States Strategic Command (STRATCOM) just completed one of the most modern and secure facilities called the Situation Room, which takes complete advantage of state-of-the-art technology and provides our senior decision makers the capability to communicate and collaborate with supporting forces, other combatant commanders and national leadership while maintaining global situational awareness. We are now in the process of doing a full upgrade and modernization of our fixed command center to bring this facility on par with the Situation Room.

#### LONG-RANGE STRIKE SYSTEMS

2. Senator ALLARD. Admiral Ellis, when the Services talk about long-range strike or Global Strike, they often tend to talk in terms of theater systems such as tactical aircraft. What methodologies do you use to compare requirements for long-range strike systems in combination with requirements for theater systems?

Admiral ELLIS. Two years ago, while we were first developing Global Strike as it appears in Unified Command Plan (UCP) 02, Change 2, the Air Force was also developing a concept for prompt Global Strike. Admittedly, this coincidental use of similar terms has created some confusion. STRATCOM's UCP-defined Global Strike mission is a joint, integrated mission combining kinetic and nonkinetic means to achieve rapidly planned/rapidly approved/rapidly executed, long-range, strategic effects. STRATCOM's prompt Global Strike processes are built around rapid collaborative planning and senior-level approval. Therefore, the product of a prompt Global Strike planning effort could be the approval of a theater-based strike package or a long-range strike package, both of which could be called "Global Strikes." The Air Force's prompt Global Strike capabilities can provide an element of the joint mission assigned to STRATCOM. The Air Force's prompt Global Strike capabilities, however, also support geographic combatant commander's requirements.

STRATCOM will consider all Service capabilities (Air Force and others) that meet our basic requirements of: long-range, speed of response, precision and lethality. STRATCOM is developing a Global Operations Center that will look across all blue forces available during crisis planning in order to develop the most effective Global Strike courses of action (COAs). To the extent of their availability, theater forces (such as tactical aircraft) will be considered during COA development.

#### NUCLEAR DETERRENCE

3. Senator ALLARD. Admiral Ellis, STRATCOM has absorbed several new missions in addition to its traditional mission of nuclear deterrence. These include missile defense coordination; coordinating, planning, and conducting intelligence, surveillance, and reconnaissance (ISR) missions; information operation; and Global Strike. In addition, STRATCOM and Space Command were merged into the new Strategic Command. How is your command dealing with the huge workload of absorbing this new mission and what challenges in this process have you found most difficult to overcome?

Admiral ELLIS. The President established STRATCOM to provide a practical means to implement and integrate a new triad of global response capabilities. We have the responsibility for Global Strike—both kinetic and non-kinetic—and for integrating missile defenses with a broad-spectrum of flexible offensive and support capabilities. There is a synergy in integrating these facets into one command and we are proceeding well down the road on gaining full operational capabilities for each newly assigned mission. We are addressing opportunities to gain capabilities in space system technology and advanced conventional strike.

#### BOMBER FLEET

4. Senator ALLARD. Admiral Ellis, from your perspective as STRATCOM commander, is the bomber fleet properly sized and would you recommend any changes to the current structure of the bomber fleet?

Admiral ELLIS. The adequacy of the overall bomber fleet size and composition must be examined from the global perspective of the Air Force; but from a STRATCOM perspective, the current bomber fleet size is adequate to meet the needs of the operational plans they support.

5. Senator ALLARD. Admiral Ellis, what are the most important upgrades to current generation bombers and are these initiatives adequately supported?

Admiral ELLIS. We are carefully monitoring the progress of two critical bomber upgrade programs: Advanced Extremely High Frequency (AEHF) terminal integration for the B-2 is key to gaining the capability of survivable, robust, and secure two-way satellite communications in a stressed environment.

Additionally, the International Civil Aviation Organization will no longer grant waivers to very high frequency (VHF)-equipped aircraft that are unable to receive and transmit in 8.33 khz increments. B-52s will gain that important capability from the Global Air Traffic Management Program. Without it, they will not be able to operate out of European airfields, if the need arises.

#### NUCLEAR WEAPONS STOCKPILE PLAN

6. Senator ALLARD. Ambassador Brooks and Admiral Ellis, during the hearing, there may have been some confusion about a line of questions on the Nuclear Weapons Stockpile Plan (NWSP). Please provide for the record your view on why, even without a final NWSP, the NNSA should proceed in fiscal year 2005 with the following four nuclear weapons initiatives: the Advanced Concepts Initiative; the feasibility study on the Robust Nuclear Earth Penetrator (RNEP); the design and environmental assessment work on the Modern Pit Facility (MPF); and enhanced test readiness. How would you respond to critics who claim you should not do any work on these four initiatives without a final NWSP?

Ambassador BROOKS. These four initiatives, in large part, are independent of the details of the revised 2012 NWSP. That plan will determine the number of warheads and warhead types from the legacy, Cold War stockpile that we will need to maintain between now and 2012. The Advanced Concepts Initiative and the RNEP Phase 6.2 study address options to transform that stockpile in the years beyond 2012; nothing in the revised stockpile plan would obviate the need for these two efforts. Moreover, so long as our Nation requires safe and reliable nuclear forces for its security, a test readiness program is a prudent hedge against a failure of a warhead critical to our deterrent that cannot be resolved without nuclear testing—this need is independent of the revised stockpile plan. Finally, irrespective of the size of the nuclear stockpile, and even if we never deploy another new warhead, we will still need an MPF to produce replacement pits for warheads whose pits will have aged out. The size and capacity of that facility will, of course, depend on the size and composition of the nuclear stockpile as well as on pit lifetime. In view of these uncertainties, MPF planning underway is exploring options at the low end of the range of plausible plant production capacities—if are planning assumptions are wrong there is plenty of time before construction begins to adjust plant capacity accordingly.

Admiral ELLIS. The four initiatives you cite are independent of each other and the NWSP. The NWSP is focused on numbers and types of weapons. Neither the RNEP study nor any Advanced Concepts would be reflected in the plan until and unless approved for development and production. The design and environmental assessment for the MPF do not require the details of the NWSP during these initial stages, and enhanced test readiness is an infrastructure issue and not sensitive to the size of the stockpile.

7. Senator ALLARD. Ambassador Brooks and Admiral Ellis, would active programs in these four initiatives help the Department of Defense (DOD) to complete the NWSP and could active programs in these four initiatives help to reduce the number of nuclear weapons in the operationally-deployed and response force?

Ambassador BROOKS. Certain of these initiatives could indeed help to reduce the number of nuclear weapons that are in the operationally-deployed or responsive forces. For example, our current plan is to maintain some additional warheads in the nuclear stockpile as reliability replacements for warheads that experience age-related problems that could call into question their safety or reliability. Planning for an MPF is a critical step in restoring our production infrastructure. An ability for timely production of replacement warheads to address technical problems that arise would mean that we would not need to maintain as many warheads in the overall stockpile.

Admiral ELLIS. None of these initiatives have any bearing on reducing the number of weapons in the stockpile in the near term. However, in the long term, once a responsive infrastructure is implemented (for example, the MPF), it could possibly support deeper stockpile reductions.

8. Senator ALLARD. Ambassador Brooks and Admiral Ellis, considering continuing advances in defense technologies and intelligence capabilities, constantly changing

geopolitical balances, and other factors discussed in the Nuclear Posture Review (NPR), is the NWSP ever truly completed?

Ambassador BROOKS. No, it is not truly ever completed. We typically update the NWSP annually.

Admiral ELLIS. Through the annual review process mandated by the President, the NWSP is designed to be a living document. It generally articulates policy guidance, details a snapshot in time in the life of the stockpile, and outlines the vision and goals for the foreseeable future.

9. Senator ALLARD. Ambassador Brooks and Admiral Ellis, in general, please indicate the level of complexities required to complete the NWSP.

Ambassador BROOKS. The stockpile plan is an interagency effort and is prepared jointly by the DOD and the Department of Energy (DOE). Once both Secretaries concur on the document it is sent to the White House for approval by the President. Because these are typically complex issues and critical to our Nation's security, understanding their full implications and then reaching agreement on specific options is a lengthy and time-consuming process.

Admiral ELLIS. The DOD and NNSA analysts spend thousands of man-hours examining stockpile alternatives. Analysts examine potential changes in the strategic environment (a new threat or reliability concern) and the ability to react to a changed environment via weapons retained in the stockpile and a more responsive infrastructure.

10. Senator ALLARD. Ambassador Brooks and Admiral Ellis, does the NNSA have enough information about what will be included in the NWSP to prudently proceed with the four initiatives?

Ambassador BROOKS. Yes. These four initiatives in large part are independent of the details of the size and composition of the nuclear weapons stockpile. Even if we never deploy another new warhead, we will still need an MPF to produce replacement pits for warheads whose pits have reached the end of their service lives. The size and capacity of that facility will, of course, depend on the size and composition of the nuclear stockpile as well as on pit lifetime. MPF planning underway is exploring options at the low end of the range of plausible plant production capacities. If we are wrong in our planning assumptions, there is plenty of time before construction begins to adjust plant capacity accordingly.

Admiral ELLIS. Yes.

11. Senator ALLARD. Ambassador Brooks and Admiral Ellis, would reasonably anticipated modifications to the NWSP cause any changes to the research or other activities planned for the four initiatives in fiscal year 2005?

Ambassador BROOKS. No. There are no research or other activities planned to be underway on these four initiatives in fiscal year 2005 that would need to be changed based on anticipated modifications to the revised 2012 NWSP. These initiatives will ensure that we can sustain and, in the case of planning for an MPF, restore our nuclear weapons capabilities in the period well beyond 2012.

Admiral ELLIS. No, none.

#### PRICE-ANDERSON AUTHORITY

12. Senator ALLARD. Ambassador Brooks, Price-Anderson authority is the indemnification protection for DOE contractors who work on nuclear matter and it expires at the end of this calendar year. What would the impact be on the DOE if the Price-Anderson indemnification authority is not extended beyond its expiration at the end of this calendar year?

Ambassador BROOKS. NNSA utilizes the Price-Anderson authority to indemnify its contractors against public liability arising from a nuclear incident. If the authority to indemnify is not extended NNSA will utilize the authority fund in Public Law 85-804 to provide its contractors protection as nearly approximate to Price-Anderson as possible. This was done in the late 1980s when Price-Anderson authority had expired. Because Public Law 85-804 authority is not specifically tailored to address the risks associated with Atomic Energy Act work, its protections under the best of circumstances is not as good as Price-Anderson and may leave the public with less protection in the event of a nuclear incident.

NNSA will conduct at least two significant procurement actions, beginning in 2004, with award expected in 2005: the management and operating contracts for Los Alamos National Laboratory and the Nevada Test Site. If the Price-Anderson indemnity is not available there may be a chilling effect on competition. At least one

firm has informed NNSA that it would not propose in the absence of Price-Anderson authority.

13. Senator ALLARD. Ambassador Brooks, are there any contracts which you anticipate will be signed in fiscal year 2005 which would be impacted by the expiration of Price-Anderson authority?

Ambassador BROOKS. As noted in the response to Question 12, NNSA expects to sign management and operating contracts for Los Alamos National Laboratory and the Nevada Test Site in 2005. In addition, the management and operating contracts for the Kansas City Plant, the Y-12 Plant and the Pantex Plant expire in 2005; each of these contracts has an option to extend the period of performance for 5 years.

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#### QUESTIONS SUBMITTED BY SENATOR BILL NELSON

##### B-1 BOMBERS

14. Senator BILL NELSON. Admiral Ellis, the Air Force has apparently decided to return to service 7 of the 23 B-1 bombers that were slated for retirement. General Moseley has indicated that an additional 10 of the 23 may be available to bring back to service. Of those 10, apparently 5 are in fairly good condition such that they would be easier to recover. The remaining six are apparently too far in the retirement process to be brought back. Recognizing that the B-1 is no longer nuclear capable, but given your expanded responsibilities for Global Strike, would you support bringing back more than seven bombers, if it were feasible?

Admiral ELLIS. As one of many users of the B-1, STRATCOM is not in a position to evaluate the overall needs of the Air Force for this important system. However, from a STRATCOM perspective, the current fleet is adequate to meet our needs.

##### B-2 AND B-52 BOMBERS

15. Senator BILL NELSON. Admiral Ellis, during Operation Iraqi Freedom the B-2s and B-52s flew 5 percent of the sorties but dropped 65 percent of the ordnance. Are you satisfied that the programs to maintain and upgrade the capabilities of the B-2 and B-52 are adequately funded and on track?

Admiral ELLIS. We are carefully monitoring the progress of two critical bomber upgrade programs:

AEHF terminal integration for the B-2 is key to gaining the capability of survivable, robust, and secure two-way satellite communications in a stressed environment.

Additionally, the International Civil Aviation Organization will no longer grant waivers to VHF-equipped aircraft that are unable to receive and transmit in 8.33 khz increments. B-52s will gain that important capability from the Global Air Traffic Management Program. Without it, they will not be able to operate out of European airfields, if the need arises.

16. Senator BILL NELSON. Admiral Ellis, only 76 of the 93 aircraft in the B-52 fleet are being upgraded and modernized. In your view should the entire fleet, including the attrition reserve aircraft, be upgraded and modernized?

Admiral ELLIS. The Air Force has conducted studies over the past several years to determine the right mix of bombers to fund, and I am satisfied with their evaluation.

#### NUCLEAR WEAPONS TESTING AND STOCKPILE RELIABILITY

17. Senator BILL NELSON. Ambassador Brooks, the DOE will, according to its plan, complete the process to achieve a 24-month test readiness by early fiscal year 2005 and then complete the process to achieve an 18-month test readiness by the end of fiscal year 2005. This is 1 year earlier than the direction contained in the National Defense Authorization Act (NDAA) for Fiscal Year 2004. Why is DOE moving so quickly to achieve the 18-month test readiness posture?

Ambassador BROOKS. The Department's actions are consistent with congressional direction. Section 3113 of the NDAA for Fiscal Year 2004 requires that the Secretary of Energy, not later than October 1, 2006, achieve a readiness to conduct an underground nuclear test within 18 months. Our fiscal year 2005 request was to enable us to meet this congressional requirement. However, funding cuts and delays

from continuing resolutions have caused a slip in the timeframe somewhat, to about the second quarter of fiscal year 2006.

As the President has made clear, we have no intention of resuming testing; our plans to improve test readiness are a prudent hedge against the possibility of a problem arising in the stockpile that cannot be confirmed, or a fix certified, without a nuclear test.

18. Senator BILL NELSON. Admiral Ellis, does this rush to achieve an 18-month test readiness test posture signify that the DOE wants to resume nuclear weapons testing to support the development of a new nuclear weapon or to test an advanced nuclear weapons concept?

Admiral ELLIS. The DOD currently has no requirement to develop a new nuclear weapon or to test an advanced nuclear weapon concept in an underground testing environment.

#### ADVANCED NUCLEAR WEAPONS CONCEPTS

19. Senator BILL NELSON. Ambassador Brooks and Admiral Ellis, on March 17, 2004, the DOE submitted a report on its plans for \$2 million of \$6 million appropriated for fiscal year 2004 for advanced nuclear weapons concepts. In discussing the reason that the administration requested the repeal of the ban on low-yield weapons research and development the report states: "A revitalized nuclear weapons advanced concepts effort is a core element of NNSA's ability to respond, in a timely manner, to DOD's nuclear weapons needs." What are the needs of the DOD to which the DOE is responding that could only be addressed with repeal of the ban on low-yield nuclear weapons research?

Ambassador BROOKS. Repeal of the ban on low-yield nuclear weapons research was not undertaken in order to meet a specific DOD requirement for a new, low-yield warhead. Rather, we sought repeal to ensure that we had the freedom to explore the full range of advanced nuclear warhead concepts without the chilling effect on scientific inquiry that the law represented.

Admiral ELLIS. There is great value in investigating a deterrent strategy that is global in nature and includes the most effective mix of capabilities available, including nuclear, advanced conventional, nonkinetic, and Special Operation Forces. The DOD is interested in conducting rigorous studies of all new technologies, and examining the merits of precision, increased penetration, and reduced yields for our nuclear weapons that will provide a broad-spectrum of capabilities that may prove effective against new or emerging threats, such as select hard and deeply buried targets.

#### REQUIREMENTS FOR NEW NUCLEAR WEAPONS

20. Senator BILL NELSON. Admiral Ellis, what is the process by which a military requirement for a new nuclear weapon would be developed and what is the process by which a military requirement would be developed for a modification of an existing nuclear weapon to meet a new military purpose? At what stage in the 6.X process would such a requirement be developed?

Admiral ELLIS. The process for developing and processing requirements for a new nuclear weapon is administered by the Nuclear Weapons Council and follows the life-cycle known as Phase 1 through Phase 7. The key document that captures the DOD requirement for the weapon is the Military Characteristics (MC) for the weapon. Each weapon in the stockpile has an MC document.

When establishing a military requirement that could result in a modification to an existing weapon to meet new military mission needs, one would follow what is referred to as the 6.X process, overseen by the Nuclear Weapons Council. The 6.X process consists of the following phases: Concept Assessment, 6.1; Feasibility Study and Option Down Select, 6.2; Design Definition and Cost Study, 6.2A; Development Engineering, 6.3; Production Engineering, 6.4; First Production, 6.5; and Full-Scale Production, 6.6.

Depending on whether the weapon is new or modified, the development phase of the process would be Phase 3 or 6.3.

#### ROBUST NUCLEAR EARTH PENETRATOR

21. Senator BILL NELSON. Ambassador Brooks and Admiral Ellis, the NNSA, according to its fiscal year 2005 budget request, will spend \$135 million to complete the phase 6.2/6.2A study on the RNEP. This is substantially more than the \$45 mil-

lion that was announced in fiscal year 2003 when the first funding for the RNEP was requested. Why has the cost grown so substantially and what activities are covered in this amount?

Ambassador BROOKS. The cost to complete the RNEP Phase 6.2/6.2A study has not increased. Included in the “out-years” request in our fiscal year 2005 Future Years Nuclear Security Plan (FYNSP) is the funding that would be required in fiscal year 2006 and beyond should a decision be made to advance RNEP into full-scale engineering development. I must emphasize that no decision has been made to do this, nor do we anticipate such a decision until after the RNEP study is completed. Our inclusion of these funds in the FYNSP “out-year” budget request was a prudent “placeholder” in the event a decision is made in fiscal year 2006 to develop the RNEP system.

Admiral ELLIS. I respectfully defer to Ambassador Brooks on specifics related to NNSA’s fiscal year 2005 budget request.

[Whereupon, at 11:24 a.m., the subcommittee adjourned.]



**DEPARTMENT OF DEFENSE AUTHORIZATION  
FOR APPROPRIATIONS FOR FISCAL YEAR  
2005**

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**THURSDAY, MARCH 25, 2004**

U.S. SENATE,  
SUBCOMMITTEE ON STRATEGIC FORCES,  
COMMITTEE ON ARMED SERVICES,  
*Washington, DC.*

**NATIONAL SECURITY SPACE PROGRAMS AND  
MANAGEMENT**

The subcommittee met, pursuant to notice, at 2:30 p.m. in room SR-232A, Russell Senate Office Building, Senator Wayne Allard (chairman of the subcommittee) presiding.

Committee members present: Senators Allard, Akaka, Bill Nelson, and E. Benjamin Nelson.

Majority staff member present: Brian R. Green, professional staff member.

Minority staff member present: Kenneth M. Crosswait, professional staff member.

Staff assistants present: Michael N. Berger, Andrew W. Florell, and Bridget E. Ward.

Committee members' assistants present: Jayson Roehl, assistant to Senator Allard; Arch Galloway II, assistant to Senator Sessions; Davelyn Noelani Kalipi and Richard Kessler, assistants to Senator Akaka; and William K. Sutey, assistant to Senator Bill Nelson.

**OPENING STATEMENT OF SENATOR WAYNE ALLARD,  
CHAIRMAN**

Senator ALLARD. We call the subcommittee to order and, just to let our witnesses know about what we are facing here, we have a 2:45 vote. I am going to make an opening statement and we will let Senator Nelson, the ranking member, make an opening statement, and we will go as far as we can with the testimony and then we will go vote and come back.

If I have other Republicans set up over here, or somebody shows up on the other side, we may have an opportunity to let them make their statement or you continue to make your statements, and we will run down and vote and come back, so we can keep it going so we can get out of here and keep you on time as best we can.

We meet today to receive testimony on the space programs of the Department of Defense (DOD). I want to first welcome Senator Bill Nelson, my ranking member on the Strategic Forces Subcommittee.



I know you share my keen interest in space issues and I look forward to working with you closely in this area.

I am also pleased to welcome the witnesses today: the Honorable Peter B. Teets, Under Secretary of the Air Force; Admiral James O. Ellis, Commander, United States Strategic Command (STRATCOM); General Lance Lord, Commander, Air Force Space Command (AFSPC); and retired Vice Admiral Arthur Cebrowski, Director of Force Transformation in the Office of the Secretary of Defense (OSD).

Admiral Ellis, it is good to see you again today. We had an opportunity to hear from each other yesterday. I thank you all for your service to the Nation and for taking time out from your very busy schedules to join us here today.

Our space forces today are the most capable they have ever been and they provide our military a decisive advantage over our adversaries. The stories of how space contributed to our rapid victory over Saddam's forces in Iraq last year are well known and praise for how well our space forces performed is well justified.

The space assets that provide these tremendous capabilities were developed by extraordinarily talented individuals. There is no denying their great success. At the same time, however, many space acquisition programs have had long, difficult development histories. Space-based Infrared Radar System (SBIRS)-High, Advanced Extremely High Frequency (AEHF), and Evolved Expendable Launch Vehicle (EELV) programs, and the Future Imagery Architecture (FIA) program, to name a few, have experienced significant problems in the past few years.

I think many people are concerned, with considerable justification, that space programs are so often fraught with such great difficulties. Difficulties that manifest themselves in increased costs, schedule delays, and technical complications.

Secretary Teets, I commend you for your reforms of the space acquisition process as you try to control risks and minimize these problems. I also believe it is to your great credit that you commissioned the Young Panel, a joint Air Force-Defense Science Board (DSB) group of experts, to explore some of the causes of these difficulties. The task force identified five causes for the cost growth and schedule delays in National Security Space (NSS) programs, including cost as the primary management driver in, as opposed to mission success; unrealistic cost estimates and unrealistic budgets; inadequate requirements definition and requirements instability; erosion in the government's ability to lead and manage the space acquisition process; and industrial management failures.

The General Accounting Office (GAO) also put out a recent report on this subject that in some ways parallels the Young Report, but GAO also identified the use of immature technologies as a prominent cause of these difficulties.

We might add to this inventory of causes the fact that space is a very challenging environment in which to operate. As I have dealt with some of the programs in the authorization process over the past few years, I have wondered if some of the problems are simply inherent in the way we develop and operate our space capabilities. The process it seems to me goes something like this:

Space launch continues to be very expensive, so we do not launch very often. With launch both infrequent and expensive, we must build the most capable spacecraft we can and we build them to last a long time. That means we use the most advanced technology we can in constellations of just a few satellites. So we use the most sophisticated technologies in just a few platforms, with very limited opportunities to improve in an evolutionary manner. We also try to make such a system work perfectly the first time it is launched and the first time it functions in its operational environment.

It seems to me that it is this set of challenges that makes these programs so difficult. I am encouraged that the Air Force budget includes funding for Operationally Responsive Launch (ORL). The intent of that program, if I understand it correctly, is to try to reduce launch costs and time lines, at least for small payloads.

I also note that the Secretary and Chief of Staff of the Air Force have testified before the full committee on the importance of responsive space capabilities, and I know Admiral Cebrowski's office has sponsored some very interesting initiatives in this area. Admiral Cebrowski, I read your prepared statement for today's hearing with great interest. The business model today, focused on large, complex satellites, evolved for good reason and has provided us with remarkable capabilities. It does seem to me that technology has advanced to the point that an additional approach to space capabilities, one that features much smaller satellites, more frequent launches, and operational and technical agility, must be examined more thoroughly and could provide great advantages.

I am very interested in exploring these ideas of how new capabilities might fit into future architectures and how this new approach could achieve significant capabilities for the warfighter at lower risk. This needs to be a high priority. I am concerned that the Department has not adequately resourced this approach this year, particularly as it pertains to small satellites.

I also intend to determine if additional funding or legislation might be useful to accelerate the progress that has already been made to date by the Air Force and the Office of Force Transformation (OFT).

I commend the Air Force for its interest in ORL and OFT for its transformational vision. I am convinced that this new approach holds great promise that must be aggressively explored. At the same time, I fully understand that we have ongoing space programs that will continue to provide very important capabilities and that business models and technical approaches do not change overnight.

I look forward to exploring with our witnesses the status of current programs, the challenges they face, and how we might meet these challenges successfully.

Gentlemen, I know how busy you are and appreciate your willingness to appear before our subcommittee and I look forward to your testimony.

#### **STATEMENT OF SENATOR BILL NELSON**

Senator BILL NELSON. Mr. Chairman, I will boil down my opening statement to five words: access to space and technical chal-

lenges. That will be the essence of my line of inquiry, and I will submit a statement for the record.

[The prepared statement of Senator Bill Nelson follows:]

PREPARED STATEMENT BY SENATOR BILL NELSON

Thank you Senator Allard. I would like to join you in welcoming our witnesses this afternoon.

This is an important hearing and it is a pleasure to have each of our witnesses here today. As the United States becomes increasingly dependent on space for a wide variety of functions, from ATM machines to operations in Iraq, to maintaining vigilance through our intelligence, surveillance, and reconnaissance (ISR) assets, we must ensure that we always maintain access to space and to our space assets.

Maintaining our access to space—ensuring that the ability to launch satellites as and when needed—is critically important to national security. Put simply, we would not be the same country if we were not able to maintain assured access to space.

The program that will allow us to maintain this access in the near term is the Evolved Expendable Launch Vehicle (EELV) program. This program has its share of issues at the moment, not the least of which is cost. We will, I am sure, have an opportunity to have a full discussion of the EELV program today.

A longstanding concern of mine, and one that I believe I share with you, Senator Allard, is the fact that with most all of the National Security Space (NSS) satellite programs are experiencing some sort of technical difficulty. They are over budget and behind schedule—some by significant amounts of time and money. Curiously, the reasons for these problems vary with the program. It is not just the more mature programs that are of concern. Some of the newer programs are so technically aggressive that although they may not yet be over budget or behind schedule, it is probably only a matter of time before they, too, will be beset with problems.

Today, I would like to focus on a few of the satellite programs that are of particular concern to me, the Transformational Communications satellite, the Advanced Extremely High Frequency (AEHF) satellite, the Space-based Radar (SBR), and the Space-Based Infrared System (SBIRS)-High.

Also of concern, from a policy perspective, are space programs in the Missile Defense Agency (MDA). Today, I would like to discuss the policy and programmatic issues associated with these MDA space programs. It appears that these programs may be the beginning of a change in U.S. policy with respect to space weapons.

The last area that I hope to discuss is where we go in the future. I would very much like to hear from each of our witnesses their visions for NSS in the future. Where will we be in 5, 10, or 20 years?

Secretary Teets, I want to note the attention you have given to ensuring that we also have the people that we need to ensure our ability to utilize space as a national asset. This is a real challenge and I want to thank you for your efforts and your dedication to the space professionals.

Thank you Senator Allard, and to our witnesses, it is a pleasure to have you all with us. Collectively you bring many years of space wisdom.

Senator BEN NELSON. The other Senator Nelson.

Senator ALLARD. Right.

Senator BEN NELSON. Thank you, Mr. Chairman.

I want to welcome all of you today, but especially my good friend Admiral Ellis, the Commander of STRATCOM. Although it is newly expanded, STRATCOM already has a very proud legacy and an opportunity for the future. So many of the missions that will be talked about in the future and a lot of the planning will, in the words of my colleague from Florida, involve space.

I know we are all interested in how this will affect preparedness, how it will help the American people feel more secure and have more security in the world.

I thank you very much for being here, thank you for taking on this responsibility, and look forward to your comments.

Thank you, Mr. Chairman.

Senator ALLARD. Thank you.

We are just checking on the bell here to make sure we are not having a vote that is getting started. I welcome the panel here, and we thought we would start with Dr. Teets, Under Secretary of the Air Force and Director of the National Reconnaissance Office (NRO). It is always good to hear from you, Dr. Teets.

Then after each of you have had your testimony, we will proceed with 10-minute rounds of questions and comments from the members of the committee.

Dr. Teets.

**STATEMENT OF HON. PETER B. TEETS, UNDER SECRETARY OF THE AIR FORCE AND DIRECTOR, NATIONAL RECONNAISSANCE OFFICE**

Dr. TEETS. Thank you, Mr. Chairman and distinguished members of the subcommittee. I am very pleased to be here today and to have an opportunity to make some remarks. I have submitted a written statement for the record, and with your permission would like to ask that it be entered into the record, but I do have a few brief opening remarks I would like to make today.

Senator ALLARD. All of your full statements will be entered in the record and please proceed.

Dr. TEETS. Thank you.

I am particularly honored to be here with Admiral Ellis, General Lord, and Admiral Cebrowski. Over the course of my tenure, I have had the good fortune of working closely with these three gentlemen, and indeed I think that does emphasize the importance that we place on jointness in our NSS endeavors. We have worked hard together as a team to define a way ahead that will provide a strong NSS program that meets the needs of all the military services as well as the Intelligence Community.

The President's budget request, along with our efforts to develop and maintain our team of space professionals, will enable us to sustain America's preeminence in space. In my multiple roles as the DOD's Executive Agent for Space, Under Secretary of the Air Force, and the Director of the NRO, I have set five priorities for our NSS efforts in this year of 2004. They are:

Number one, achieving mission success in operations and in acquisition;

Number two, developing and maintaining a team of space professionals;

Number three, integrating space capabilities for national intelligence and warfighting;

Number four, producing innovative solutions for the most challenging national security problems; and

Number five, ensuring freedom of action in space.

These priorities have shaped the fiscal year 2005 budget for our DOD space programs and I see substantial improvement in capabilities in every mission area as we recapitalize our space assets in the years ahead.

The funding requested in the President's budget for fiscal year 2005 allows us to evolve capabilities in current constellations while planned investments in new space systems will provide significant increases in performance, supporting the full range of intelligence and military operations, to include the global war on terrorism.

We are aggressively pursuing two major initiatives that will deliver transformational capabilities to military and intelligence operations. First, the Transformation Communications Architecture (TCA) will provide vast improvements in data rates, expanded accesses, communications on the move, the Internet protocol-based connectivity. As a part of that architecture, the Transformational Communications Satellite (TSAT) will be a revolutionary change in satellite communications for the warfighter and for national intelligence users, and is an enabler of horizontal integration, allowing our fighting forces to have near-real-time intelligence, surveillance, and reconnaissance (ISR) at their fingertips.

TSAT will provide an unprecedented connectivity with Internet-like capabilities that extends the global information grid to deployed and mobile users worldwide and will deliver an order of magnitude increase in capacity. The program entered design phase this past January and as a result we recently awarded two contracts, for technology risk reduction and design development. We plan to launch the first TSAT in November 2011.

Second, we are moving to more persistent surveillance with Space-Based Radar (SBR) and other innovative capabilities. SBR will provide a start on persistent global situational awareness and target tracking capability as part of a horizontally integrated DOD-wide and national system of systems. Radar from space will provide day-night, all-weather, worldwide, multi-theater surveillance on demand.

In fiscal year 2005 we plan to focus on concept definition, risk reduction, and systems engineering activities, all leading to a system requirements review in the third quarter of fiscal year 2005 and a system design review as early as fiscal year 2006. These activities are part of the study phase, which will culminate in a downselect award and a decision to enter design phase in mid-fiscal year 2006.

As I look over our NSS program, there are areas that require our vigilant attention and we plan to work these areas hard in the coming months, placing emphasis on each of these areas in future budget deliberations.

For some of our constellations, our replenishment strategy provides very little margin if there is a launch failure, a premature on-orbit failure, or a significant program delay. While I am confident in the systems we are developing, true capability is the result of end-to-end performance in support of the user. Greater emphasis is needed on synchronization of fielding ground and air receivers and terminals to match on-orbit capabilities.

The aggressive DOD to Intelligence Community horizontal integration effort to better integrate and exploit ground, air, and space remote sensing capabilities remains a priority for us.

We have taken steps to strengthen the acquisition process for NSS programs, but there is still much to do. We are committed to building credible management reserves into our acquisition program so that the program managers (PMs) will have the resources available to solve problems in a timely way.

Mission success in all phases of space operations and acquisition continues to be my highest priority. We made steady progress on space programs during the past year and the President's fiscal year

2005 budget request, along with efforts to enhance the space profession, will enable us to continue that progress.

I appreciate the continued support that Congress and this committee have given to help deliver these vital capabilities and I look forward to working with you as we continue to develop, produce, launch, and operate critical space systems that deliver vital capabilities to this great Nation.

Mr. Chairman, this concludes my opening remarks and I look forward to your questions.

[The prepared statement of Dr. Teets follows:]

#### PREPARED STATEMENT BY HON. PETER B. TEETS

##### INTRODUCTION

It is my distinct honor to appear before the subcommittee today representing the world's finest air and space force, and to be joined by leaders of our National Security Space (NSS) activities: General Lance Lord, Commander of Air Force Space Command (AFSPC); Admiral James Ellis, Jr., Commander of U.S. Strategic Command (STRATCOM); Admiral (Ret.) Arthur Cebrowski, Director of Force Transformation, Office of the Secretary of Defense (OSD). Our appearance here, together, underscores the importance of jointness in our NSS endeavors.

Given the role of this committee, and my role in overseeing NSS activities as Under Secretary of the Air Force, Director of the National Reconnaissance Office (NRO), and the Department of Defense (DOD) Executive Agent for Space, I will concentrate my remarks today on the five priorities I have set for our NSS efforts for 2004. They are: (1) achieving mission success in operations and acquisition; (2) developing and maintaining a team of space professionals; (3) integrating space capabilities for national intelligence and warfighting; (4) producing innovative solutions for the most challenging national security problems; and (5) ensuring freedom of action in space. These priorities are my focus for this year and are supported in the fiscal year 2005 budget for our DOD and NRO space programs.

##### ACHIEVE MISSION SUCCESS IN OPERATIONS AND ACQUISITION

Our ongoing activities in support of the global war on terrorism highlight the fact that our space capabilities have become increasingly integrated in our national intelligence and warfighting operations. Space systems are unique assets—they provide global persistence, perspective, and access unhindered by geographic or political boundaries. Our space systems, whether integrated with airborne and surface sensors, or acting alone over areas of high risk or denied access, provide critical surveillance and reconnaissance information to national decisionmakers and combatant commanders. They are also the primary sources for global environmental monitoring and weather forecasting data, global communications, missile warning, precision navigation and timing to troops on the ground, ships at sea, aircraft in flight, and weapons en route to targets. These space capabilities enabled the tremendous success our joint warfighters achieved during combat operations in Afghanistan and Iraq and will continue to be a cornerstone for success in future conflicts.

Our success in conflict relies on a mixture of technologies, tactics, and people, including military members, government civilians, and contractors. During Operation Iraqi Freedom (OIF), Air Force Space Command crews and their contractor mission partners developed new tactics and procedures to achieve the highest global positioning system (GPS) accuracy possible to support combat operations; as a result, we were able to strike legitimate regime targets with pinpoint accuracy while minimizing collateral damage, protecting civilian lives, and reducing re-strike requirements. Also, in a prime example of the benefits provided by integrating sources, coalition forces used a mixture of space, airborne, and surface sensors to detect Iraqi theater ballistic missile launches, protecting lives while allowing our troops to sustain their operations tempo.

To maintain our asymmetric advantages in space, we must continue to provide our warfighters with the most capable and reliable systems possible. We have eight NSS launches planned for calendar year 2004, which focus on sustaining and improving existing military and intelligence satellite constellations. This year, we will launch three GPS Imaging Infrared (IIR) satellites, and on February 14, 2004, I was pleased to be present as our Air Force and industry team successfully launched a Defense Support Program (DSP) satellite to augment our strategic missile warning capabilities. This launch, and the launch of an NRO payload in the last quarter of

calendar year 2004—one of three NRO launches this year—mark the last Titan launches from Cape Canaveral after 45 years of test and operations. Now our focus is shifting to the Evolved Expendable Launch Vehicle (EELV) system for our future space launch missions. In support of this transition, we plan to launch the first heavy lift Delta IV EELV this year, giving us the capability to launch our heaviest communications and national security payloads. Our budget this year supports an anticipated price increase in future EELV buys, due largely to the downturn in the commercial launch market.

Mission success in operations must be accompanied by mission success in acquisitions. We have benefited greatly from the recommendations of the joint Defense Science Board (DSB) and Air Force Scientific Advisory Board task force on Acquisition of National Security Space Programs, led by A. Thomas Young. One of their recommendations, with which I strongly agree, is that mission success should be the primary driver of a program, not cost and schedule.

As programs are established, strong systems engineering practices need to be employed. Management of requirements, early risk reduction activity, rigorous design discipline, periodic independent program assessment, and thorough component subsystem and system level test activities need to be built into the program at the onset. Program Managers must have unencumbered schedule and financial reserves at their disposal to solve problems that arise during program execution.

In an effort to institutionalize this thinking, and following an extensive coordination process with OSD and the Joint Staff, I signed the new NSS Acquisition Policy 03-01 on October 6, 2003. Using this process, we have conducted Defense Space Acquisition Boards that approved Space-Based Radar's (SBR) entry into the Study Phase and Transformational Satellite's (TSAT) entry into the design phase. In each case, an Independent Program Assessment Team and an Independent Cost Assessment Team identified key risk areas and made excellent recommendations on how to best manage the risks inherent in these complex and vital programs. In concert with the Joint Staff, the Intelligence Community, and the OSD, we are implementing these recommendations so that these critical programs have the necessary foundation to assure their future mission success.

In addition to the institution of NSS 03-01, we have made great strides in developing better cost estimates. In a joint effort with the Director of the OSD Cost Analysis Improvement Group (CAIG), we now have a strong space system cost estimating capability in place; and, with the CAIG leading the Independent Cost Assessment Teams, have incorporated the process on SBR and TSAT.

NSS 03-01 and its companion directive in the NRO, in their current forms, have provided excellent insight into our programs. Yet, we are learning with each program acquisition milestone decision, and will update the policies later this year.

#### DEVELOP AND MAINTAIN A TEAM OF SPACE PROFESSIONALS

In order to preserve our advantage as the leading space faring nation, we must ensure we have a strategy to guarantee availability of the most crucial element of space power—our space professionals. People remain central to our success in space, and meeting the serious challenges of today, and the future, requires a total force approach. We will continue to develop well-educated, motivated, and competent people who are skilled in the demands of the space medium.

Operationally, they must understand the tactical environment they support, as well as the space-unique tactics, techniques, and procedures needed. Technically, they must be schooled in the acquisition of space systems, the requirements of the vehicles that operate in space, and the development of space-related research, science, and technology. Our space professionals must be sensitive to the needs of the many and varied end-users of space capabilities, and be able to formulate and articulate new space doctrine to fully control and exploit the medium of space in support of our Nation's security objectives. They must be able to develop new technologies, systems, training methods, concepts of operations (CONOPs) and organizations that will continue to sustain the U.S. as a world leader in space. The new systems they develop must be able to achieve desirable effects at all levels of conflict. Furthermore, they must ensure these systems are interoperable with and integrated into architectures that support the creation of lethal and non-lethal effects. The backbone of our joint and interagency space operations capabilities will continue to be individuals of exceptional dedication and ability.

In order to develop and maintain our space professionals, we are implementing the Secretary of the Air Force-approved Space Professional Strategy, and the DOD Space Human Capital Resources Strategy. These strategies describe a professional development construct that is comprehensive and recognizes the unique roles that officers, enlisted personnel, and government civilians play in NSS. As we implement

these strategies, our objective is to ensure the space cadres of all the Services possess the necessary education, skills and experiences, at all levels, to meet NSS needs.

#### INTEGRATE SPACE CAPABILITIES FOR NATIONAL INTELLIGENCE AND WARFIGHTING

We continue to make dramatic improvements integrating our manned and unmanned terrestrial, maritime, air, and space systems for joint warfighting and intelligence collection, and have seen dramatic results. In OIF, the difference was not so much the introduction of new capabilities, but rather the integration of existing space capabilities to produce desired effects. Using existing systems in new ways, applying new ideas, and making new connections between information providers and information users is truly at the heart of our transformation and integration efforts. Our synchronization of end-user and space segment capabilities, and the improvement of our enterprise-wide vertical and horizontal integration efforts are prime examples of our ability to transform our warfighting and intelligence gathering capabilities through integration.

However, true transformational integration requires more than the use of existing capabilities in new and innovative ways. We need to make integration a priority throughout the enterprise. As we attempt to increase our worldwide persistent situational awareness, we need to bring a true system of systems approach to the fielding of new capabilities. SBR, for example, is not being developed in a vacuum. As we work through the early development of this system, which offers the promise of a start on a persistent surveillance architecture, we are ensuring that other systems in development, such as TSAT and the NRO's Optical Relay Communications Architecture (ORCA), are not just interoperable with SBR, but are truly integrated from operational concept to employment.

We continue to integrate our warfighting needs and our intelligence collection activities. The Space-Based Infrared System (SBIRS) will not only replace the veteran DSP platform, but will also meet the demands for much greater capability in the mission areas of missile defense, battlespace characterization to support real-time warfighting operations, and technical intelligence. However, technical challenges associated with electromagnetic interference have continued to delay the two highly-elliptical orbit payloads. These payloads, currently scheduled for delivery in fiscal years 2004 and 2005, will perform at the crossroads of defense and intelligence needs, and we're managing them to ensure the missions of both communities.

Another aspect of integration is to ensure that the defense and intelligence space organizations work together as a team. As the DOD Executive Agent for Space, I strongly encourage unifying efforts across all of the space stakeholders—ensuring integration remains a priority, not an afterthought. In support of this unity of effort, we continue to integrate our corporate processes. Our planning, programming, budgeting, and acquisition efforts embrace an integrated capabilities-based approach to develop the means necessary to secure our national security objectives in the most effective and efficient manner possible.

Yet, unity of effort alone is not enough. Our continuing commitment to integration is also shown in the development of our space professionals. The DOD has developed a Space Human Capital Resources Strategy designed to integrate the space cadres of the military services and the Intelligence Community to the maximum extent practicable. Among other things, this means that we will be eliminating unnecessary redundancies in our space education and training programs as well as finding and eliminating gaps in our programs. More importantly, it means that space professionals from the four Services and the Intelligence Community will be working together more closely, earlier in their careers. The best practices and ideas that they each bring to the table can truly help push our space capabilities to the next level.

Integration properly done has a synergistic effect. The value of our NSS systems, developed with a system of systems approach, using integrated corporate processes, and manned by space professionals who have been developed in an environment that fosters innovative employment, will greatly exceed the sum of the parts.

#### PRODUCE INNOVATIVE SOLUTIONS FOR THE MOST CHALLENGING NATIONAL SECURITY PROBLEMS

Our goal is transparency—we want the ability to see everything and know everything, while simultaneously denying our adversaries both the ability to do the same, and the knowledge that such capabilities are being used against them. We want to always be one step, or more, ahead of our adversaries—to be first to see, first to understand, and first to act. To do so requires the development of breakthrough technologies that would produce new sources and methods for collecting intelligence. Thus, our other activities this year support the transformation of military satellite



systems, with technology maturation and development activities in TSAT and SBR; and the modernization of current systems, including new jam-resistant capabilities for our GPS constellation.

We will launch the last of the present generation of GPS satellites in fiscal year 2004. In fiscal year 2005, we will begin launching the next generation of “modernized” GPS satellites, with military-code and flexible power capabilities. The generation after next will be composed of GPS III satellites, which will include all of the legacy capabilities, plus the addition of high-powered, anti-jam military-code, along with other accuracy, reliability, and data integrity improvements.

As always, communications play a fundamental role in any military action. We are modernizing our communications systems, as well as preparing for the next leap forward in capability. Last October, the Joint Requirements Oversight Council (JROC) approved our Transformational Communications Architecture (TCA). Part of the TCA is the Wideband Gapfiller System (WGS), which will augment the current Defense Satellite Communications System (DSCS) capability.

Another vital program, which will provide a smooth transition to TSAT, is the Advanced Extremely High Frequency (AEHF) system that replaces the MILSTAR communications constellation. The first AEHF satellite will be launched in fiscal year 2007 and will provide survivable, protected satellite communications for strategic and tactical users. AEHF represents a significant step forward in capability over current systems, providing up to 12 times greater capacity than MILSTAR with up to 4,000 simultaneous networks while hosting up to 6,000 users per satellite.

TSAT will be a revolutionary change in satellite communications for the warfighter and national intelligence. Our goal is to create an “internet in the sky”—making it possible for U.S. marines in a High Mobility Multipurpose Wheeled Vehicle (HMMWV), in a faraway land, in the middle of a rainstorm, to open up their laptops, request imagery, and get it downloaded within seconds. TSAT is an enabler of horizontal integration—allowing our fighting forces to have near-real-time intelligence, surveillance, and reconnaissance (ISR) at their fingertips. TSAT will provide an unprecedented connectivity with Internet-like capability that extends the Global Information Grid to deployed and mobile users worldwide, and will deliver an order of magnitude increase in capacity. The program entered Design Phase this past month; and as a result, we recently awarded two contracts for risk reduction and design development. We plan to launch the first TSAT in November 2011.

SBR is an important element in our efforts to achieve horizontal integration. SBR will provide a start on persistent, global situational awareness and target tracking capability as part of a horizontally integrated DOD and national system of systems. Radar from space will provide the critical element of global persistence, providing day/night, all weather, worldwide, multi-theater surveillance on-demand. In fiscal year 2005, we plan to focus on concept definition, risk reduction, and systems engineering activities, all leading to a System Requirements Review in third quarter of fiscal year 2005 and a System Design Review as early as fiscal year 2006. These activities are part of the study phase (concept definition), which will culminate in a downselect award and a decision to enter design phase in mid-fiscal year 2006.

Recent conflicts have proven, once again, how vital meteorological forecasting is for military operations. Knowing what the weather is in any given location allows us to choose the right weapon for the right target, and is an invaluable asset for navigation. The National Polar-orbiting Operational Environmental Satellite System (NPOESS) will satisfy both civil and military national security requirements for space-based, remotely sensed environmental data that will significantly improve weather forecasting and climate prediction. NPOESS is a tri-agency (DOD/Department of Commerce (DOC)/National Aeronautic and Space Administration (NASA)) satellite program consolidating the missions and programs of DOD’s Defense Meteorological Satellite Program (DMSP) and DOC’s Polar-orbiting Operational Environmental Satellite (POES) systems into a single integrated program. An integrated suite of 12 very complex instruments will provide visible and infrared cloud-cover imagery and other atmospheric, oceanographic, terrestrial, and space environmental information. The system is currently in development, with a planned first launch in fiscal year 2010.

We cannot stay on the cutting edge of development without investing in science and technology (S&T) efforts. We are actively working with the Director, Defense Research and Engineering, and organizations such as the Defense Advanced Research Projects Agency (DARPA), the Air Force Research Laboratory (AFRL), and the Naval Research Laboratory (NRL), along with civil agencies such as NASA on our space S&T effort. With their participation, we are documenting our space S&T strategy, which will be available this summer. We are also working with DARPA to leverage common technologies and applications into the Operationally Responsive Space (ORS) program, including next generation propulsion, advanced structure,

and thermal protection schemes. While we do not currently have an operational role in NASA's new space exploration program, we will work closely with the agency through our Partnership Council to find areas of possible collaboration. These activities build on nearly five decades of collaboration with NASA on X-vehicles, hypersonic propulsion, and space tests and technology demonstrations.

#### ENSURE FREEDOM OF ACTION IN SPACE

Americans have come to rely on the unhindered use of space and will demand no less in the future. This includes robust capabilities for assured launch and space control. While the United States supports the peaceful use of space by all, prudence demands that we must be able to ensure the United States, its allies, and coalition partners will be able to make use of space, while denying that use of space to adversaries.

To ensure freedom of action, we are maintaining assured access to space in the near term as we simultaneously investigate entirely new, operationally responsive space activities. Today's space surveillance capability must evolve into integrated Space Situational Awareness (SSA). Space control activities—while taking advantage of SSA—emphasize first the protection of our national security interests against known vulnerabilities and credible threats. We will also pursue a mix of capabilities to limit any adversary's ability to deny us free access to space and deny an adversary's use of space against us for hostile purposes.

We are proud of the success of both families of EELVs. With six successful launches in a row, three from each provider, these are the best launch vehicles we've ever produced. However, we are not finished yet. Long-term, we are pursuing vehicle concepts that can be launched on demand—in hours and days, rather than weeks and months—with the vision of fulfilling time-critical warfighter requirements. I've been in the launch business for 45 years, and we still launch satellites about the same way we did in the 60s. We can do better.

The intent of ORS is to create a more responsive, reliable, and affordable lift family capable of fulfilling both current and future launch requirements, and the corresponding responsive and affordable satellites. Near term, we plan to demonstrate a more responsive and less expensive launch system with capabilities of 1,000 pounds to low Earth orbit. Concurrently, Air Force Space Command, AFRL, the NRO, DARPA, OSD's Office of Force Transformation, and our national and Service laboratories are sponsoring Tactical Satellite (TacSat) initiatives focused on responsive satellites, and decreasing the size, cost, and timelines of development. The combined efforts of these initiatives—operationally responsive launch and satellite development—will transform the delivery of space-based capabilities. Similarly, our launch ranges must keep pace with modernized launch vehicles and future launch manifests.

Even as we become more operationally responsive, future adversaries will try to deny us the asymmetric advantage that space provides us—as evidenced by the GPS jamming in Iraq. We must look now to overcome future threats that may not be as straightforward. We recently finished a broad reaching study to baseline vulnerabilities of our military space systems. An action plan is being implemented that will help mitigate vulnerabilities in a way that will help ensure the availability of space capabilities to our warfighters and national decisionmakers. Our efforts currently fall into three areas: SSA, Defensive Counter Space (DCS), and Offensive Counter Space (OCS).

SSA forms the foundation for our counter space actions and includes traditional space surveillance, detailed reconnaissance of specific space assets, collection and processing of space intelligence data, and analysis of the space environment. It also encompasses the use of traditional intelligence sources to provide insights into adversary space operations. We continue to invest in critical capabilities to improve our ability to detect, track and characterize objects in space.

We are modernizing the current Space Surveillance Network with new hardware for selected radar and optical sensors, and plan to integrate and fuse this improved sensor data with space intelligence and environment data through a command and control system. This will allow us to produce a common space picture relevant to the warfighter for decisionmaking. Finally, we will increase our surveillance and characterization capabilities to new levels when we deploy our new space-based sensors: Space Based Space Surveillance (SBSS) and Orbital Deep Space Imager (ODSI).

SBSS will be a constellation of optical sensing satellites in low Earth orbit designed to provide timely and accurate information on satellite locations. The SBSS constellation is the follow-on to the successful Mid-Course Space Experiment/Space Based Visible (MSX/SBV) sensor on orbit today. The initial SBSS satellite will

launch in fiscal year 2007, and improve our ability to detect deep space objects by 80 percent over the MSX/SBV system. ODSI will be a constellation of satellites in geo-synchronous orbit, and will provide significant improvement in today's ability to not only track, but also characterize objects in space.

In terms of protecting U.S. space assets, our Defensive Counter Space program continues the development of the Rapid Attack Identification Detection and Reporting System (RAIDRS) to ensure capability to identify and locate attacks on U.S. space systems. The first spiral of RAIDRS will include radio frequency interference detection, and geo-location for communication satellites, and laser dazzling detection for DSP. RAIDRS is one key element of a larger strategy to identify and reduce vulnerabilities across the NSS sector. Over the past year, we have worked across the NRO, STRATCOM, and other organizations to develop an integrated approach for investments in protection. This crosscutting effort seeks to deter attacks on U.S. space interests by making focused investments in specific programs, as well as in generic capabilities like RAIDRS.

Our OCS program is intended to develop systems to deny adversary use of space and assure U.S. space superiority. Earlier this fiscal year, we successfully tested and delivered the first Counter Communications Systems to the 76th Space Control Squadron at Peterson Air Force Base, Colorado. We plan to deliver two more of the first generation units in fiscal year 2005 to achieve a Full Operational Capability, and will then begin work on the next generation capability. We also intend to award a contract for the multi-service Army/Air Force Counter Surveillance and Reconnaissance System (CSRS) for final system design and development. CSRS is a mobile, transportable system that will use reversible effects to counter space-based surveillance and reconnaissance satellites. Our goal is to achieve Initial Operational Capability in fiscal year 2009.

#### CONCLUSION

This is an exciting time for the space programs in the DOD and Intelligence Community. In spite of the challenges we face, we have the most capable space force in the world as proven by recent actions in Afghanistan and Iraq. Our accomplishments in calendar year 2003 include successful launches of 11 national security satellites and the successful launches of both the Atlas V and Delta IV EELVs. In addition, we have made great progress in modernizing our current family of systems, working toward the next generation of intelligence, communications, remote sensing, missile warning, and environmental satellites.

We have identified and are addressing systemic issues in order to improve our ability to deliver these vital capabilities. However, space programs are challenging—by virtue of the complex technologies, small quantities, and the inability to repair them on-orbit. This requires up-front investment and attention to practices that are more demanding than in most other acquisitions. As long as we continue to expect our space systems to provide extremely asymmetric advantages, even after years on-orbit, then we will be building systems that are on the leading edge of technology. We are working to minimize the difficulties; but as we continue to push the technological envelope, challenging situations will always be part of the equation.

I appreciate the continued support Congress and this committee have given to help deliver these vital capabilities, and I look forward to working with you as we continue to develop, produce, launch, and operate critical space systems that deliver vital capabilities to this great Nation.

Senator ALLARD. Thank you for your testimony. Now we have Admiral Ellis, Commander, STRATCOM. Admiral, it is always good to have you before us.

#### STATEMENT OF ADM. JAMES O. ELLIS, JR., USN, COMMANDER, UNITED STATES STRATEGIC COMMAND

Admiral ELLIS. Likewise, Senator.

Mr. Chairman, Senator Nelson, distinguished members of the subcommittee: As you noted, it is once again an honor to appear before you today representing the outstanding members of STRATCOM in Omaha, Nebraska, and that includes, of course, our Service components, some of whom are represented here today, including Army, Navy, United States Air Force, and now the Marine

Corps, which also provides an important Service element in support of STRATCOM's mission.

It is my pleasure to testify before you today with Pete Teets, Lance Lord, and Art Cebrowski. As the Secretary noted, we have met regularly over the past year to address the many challenges and opportunities afforded this Nation through our preeminent space systems. I look forward to discussing the operational and technical aspects of satellite and space launch programs from the warfighter's perspective, because indeed that is the charter of STRATCOM.

In previous hearings this year, before both the Senate Armed Services Committee and the Strategic Forces Subcommittee, we have covered the status of one of our legacy missions, strategic deterrence, and each of STRATCOM's newly assigned global mission areas: missile defense, Global Strike, information operations, and command, control, communications, computers, and intelligence, surveillance, and reconnaissance (C<sup>4</sup>ISR). Today, of course, we appropriately focus on what could be called one of our second legacy missions: space operations.

As you are aware, STRATCOM was created first and foremost to provide responsive, integrated, and synchronized combat capability and support across all geographic boundaries. Our very success in every area continues to be reliant upon our ability to operate to, from, in, and through space. Across the DOD, space is both a major integrator of missions and a global enabler for our forces. Our space assets gather and disseminate real-time data on virtually any location on the globe. They enable terrestrial forces with precision navigation and timing and provide essential command and control capabilities to forces anywhere on the planet.

Eighteen months after the alignment of United States Space Command and STRATCOM missions under a new command, I am convinced that grouping our Nation's space capability under a unified command with global responsibilities in the areas of missile defense, Global Strike, information operations, and C<sup>4</sup>ISR has accelerated the integration of space into all phases of our military operations.

STRATCOM is tasked to be the space advocate and spokesman for the combatant commanders. I work closely with the regional combatant commanders (RCCs) to determine requirements and bring the warfighter's perspective to the table. My staff is fast becoming expert in the technical details so we can provide an independent evaluation of the full range of system options. We are not tied to single solutions, specific systems or programs, but rather advocate broad capabilities.

Last year, 2003, was a year of tremendous change and opportunity at STRATCOM. New missions and new organizations, all in the midst of supporting Operation Iraqi Freedom (OIF) and the larger global war on terrorism. During the past year our success in the space operations realm included: transitioning the Space Operations Center in Colorado Springs to our Global Operations Center in Omaha; deploying STRATCOM support teams with reach-back capabilities for strike planning, intelligence, space, and information operations to every theater of the globe; transmitting missile early warning data to the RCCs; procuring and allocating es-

sential satellite communications bandwidth for RCCs; and providing successful space-based blue force tracking capabilities for both regular and Special Operations Forces (SOF) through our Army component, Space and Missile Defense Command.

None of this could have been accomplished without the leadership and efforts of this subcommittee and a host of talented Americans such as the gentlemen seated to my right. Right now we have an opportunity and the responsibility to continue to fundamentally reshape the future of national defense by advancing and defending the global integration of space capabilities.

There are many opportunities ahead and I am committed to working with our strong and growing team of partners, military, agency, and industry, to address each one. We are engaged in crafting not only a vision, but a clear and detailed course of action in each area. These focus areas include: assured, responsive, and affordable access to space; safe and effective launch ranges; persistent space surveillance and appropriate space control capabilities; reducing the vulnerability of space systems and their accompanying global network of ground stations and communications links and recapitalizing our space assets for the development and fielding of essential capabilities, such as those promised by the SBIRS, the Global Positioning System (GPS) Constellation, AEHF, and the TSAT.

In short, STRATCOM and its components continue to partner with all those playing an integral role in the defense of our Nation to improve the combat effectiveness of our modern joint warfighting forces. We are mindful of the magnitude of the task before us and confident in the talent of our staff, our components, and our mission partners.

I appreciate your continued support and look forward to your questions. Thank you.

[The prepared statement of Admiral Ellis follows:]

PREPARED STATEMENT BY ADM. JAMES O. ELLIS, JR., USN

#### I. INTRODUCTION

Chairman Allard, Senator Nelson, and distinguished members of the subcommittee, it is an honor to once again appear before you, representing the outstanding men and women of United States Strategic Command (STRATCOM) and to review the strategic and space capabilities that remain vital contributors to our Nation's security. During my last appearance before your subcommittee, I outlined how STRATCOM, our components, and task forces were crafting a new command focused on integrating space capabilities, deterring a wider array of potential adversaries, and recasting the Nation's global military capabilities for the demands of the 21st century.

Today, I can report that the finest soldiers, sailors, airmen, and marines—representing active duty, National Guard, and Reserves—joined by a cadre of talented civilians, have made tremendous progress in maturing the missions of the new STRATCOM.

As you recall, on January 10, 2003, the President signed Change Two to the Unified Command Plan (UCP) and tasked STRATCOM specifically with four previously unassigned responsibilities. These are: Global Strike, Global Missile Defense (GMD) Integration, Department of Defense (DOD) Information Operations (IO), and command, control, communications, computers, intelligence, surveillance, and reconnaissance (C<sup>4</sup>ISR). This unique combination of roles, responsibilities, authorities, and capabilities, under a single unified command brought with it new opportunities to recapture the classic definition of the term “strategic”: essential to the conduct of large scale military operations. In this strategic context, we also have been given the opportunity to support our Nation's security requirements around the globe by

directly supporting the regional combatant commanders (RCCs) and their deployed forces.

On January 1, 2004, I was pleased to report to the President of the United States that STRATCOM has completed reorganization and achieved full operational capability (FOC) for oversight and direction of all assigned missions. Each mission area continues to develop and, as we apply resources to each, we are moving to reach and maintain FOC in those four areas by the end of this year. Three of our missions, Global Strike, Global Integrated IO, and Global C<sup>4</sup>ISR, are on track and progressing toward FOC during 2004. GMD, the fourth newly assigned mission, will achieve Initial Defensive Operations (IDO) in the months ahead and will support concomitant achievement of STRATCOM oversight FOC.

There is still much work to do and we have outlined five major, near-term goals for STRATCOM, each of which has the potential to add significantly to our national defense.

These opportunities include:

- Proactively moving to enhance the security of our critical space systems. This will enable us to maintain an advantage in space while denying an asymmetric avenue of attack for our adversaries. In concert with Service and Office of Secretary of Defense (OSD) partners, we are crafting a step-by-step plan that approaches the problem in manageable increments.
- Continuing the implementation of the Nuclear Posture Review (NPR) while refining the way ahead through the ongoing Strategic Capabilities Assessment. This effort will enable continued reduction in the Nation's nuclear arsenal even as we examine future deterrent concepts, sustain the safety and surety of the stockpile, and modernize, through our partners at the National Nuclear Security Administration (NNSA), the Nation's technical infrastructure.
- Exploring new concepts of ISR that will permit collating and fusing data collected by the Intelligence Community and defense sources. Our goal is to aid the Nation's military and civilian leaders to move rapidly up the continuum from data to information to knowledge to wisdom.
- Simultaneously employing a nascent missile defense test bed to provide the Nation with a rudimentary defensive capability even as we support the Missile Defense Agency (MDA) as it incrementally refines and evolves a future multi-layered GMD system.
- Delivering on the full potential of DOD IO by supporting real advances in the incorporation of computer network attack and defense, electronic warfare, psychological operations, strategic deception, and operational security into our mission areas.

## II. PROGRESS OF THE "NEW" U.S. STRATEGIC COMMAND

It was a year of tremendous change and progress—incorporating new missions and crafting a new organization—all while primarily focused on supporting Operation Iraqi Freedom (OIF) and the broader global war on terrorism. During the past year this command and our components have:

- Developed a Global Strike Strategic Concept, validated it through a series of exercises and gained final approval of a Global Strike plan.
- Developed a Missile Defense Concept of Operations (CONOP) with plans in place to support operator training, evolutionary testing and system employment for GMD at IDO.
- Developed a C<sup>4</sup> CONOP and established a Global Operation Center (GOC) and Global Integration Center (GIC) to command, control and integrate support to the joint warfighter.
- Transitioned the Space Operations Center in Colorado Springs to the Space Operations Watch in the GOC in Omaha.
- Hosted Senior Warfighter's Forum to identify combatant commands' requirements for future satellite communications capabilities.
- Accepted transfer of responsibility for production of the Sensitive Reconnaissance Operations plan from the Joint Staff, a first step in achieving global ISR integration.
- Formed Joint Force Headquarters—Information Operations (JFHQ-IO) within the overall headquarters structure, commanded by the Deputy Commander, STRATCOM.
- Established strong, functional relationships with the National Security Agency (NSA), Defense Information Systems Agency, Defense Intelligence Agency (DIA), and the National Geospatial-Intelligence Agency (NGA).

- Provided federated intelligence support to Central Command (CENTCOM) and Pacific Command (PACOM), producing over 3,000 products covering 4 geographic areas covering over 12,000 points of interest.
- Procured, prioritized, and allocated military and commercial satellite bandwidth to support the critical communication needs of the combatant commanders.
- Forward deployed STRATCOM support teams with reach-back capabilities for strike planning, intelligence, and space and information operations.
- Transmitted theater early warning data on missile launches to RCCs.
- Through the Army's Space and Missile Defense Command, provided successful Space Based Blue Force Tracking capabilities for Special Operations Forces (SOF).
- Through the Joint Information Operations Center (JIOC), fully integrated IO into OIF operational planning, contributing directly to shaping of the operation and elements of its combat success.

### III. NEWLY ASSIGNED MISSIONS

#### *Global Strike*

The Global Strike mission embodies STRATCOM's "capabilities-based" strategy and employs various assets to execute limited-duration, extended-range, and precision kinetic and/or non-kinetic strikes anywhere on the globe. Our adaptive planning process is being upgraded with the goal of accelerating development of courses of action for rapid presentation to our national leadership. When fully realized we will be able to dramatically shrink response timelines.

This new construct also provides the Nation with a combatant command that effectively works across traditional regional boundaries and addresses potential threats with a global perspective. We are strengthening formal relationships through extensive coordination with RCCs, Services, the Joint Staff, and OSD.

#### *Information Operations*

As with our other global responsibilities STRATCOM is tasked with integrating and coordinating DOD IO across regional areas of responsibility (AORs). Core pillars of IO include computer network defense, computer network attack, military deception, operations security, psychological operations, and electronic warfare. The recently published DOD IO Roadmap also supports collaboration of broad IO efforts across the DOD, the Intelligence Community, and other national-level organizations in coordinated support of operations directed by the RCCs.

The ability to quantify IO effects is another area of concerted effort at STRATCOM. Initial conclusions from advanced concept technology demonstrations and a number of experiments all recommend establishing a national test range for IO. STRATCOM is working closely with OSD in establishing the requirements for just such a test range. This range will help us define effects in understandable terms, quantify systems' performance and provide assurance that the elements of IO will achieve the desired effects while avoiding unintended consequences.

- **Organizing for Success**

In April 2003, we formed a JFHQ-IO within our overall headquarters structure. This interim move enables STRATCOM to provide IO support directly to warfighters while, at the same time, developing our internal structure and nurturing these evolving capabilities.

In the past year, we have successfully integrated Computer Network Exploitation and Attack mission areas. The Network Attack Support Staff was established to function as the Computer Network Attack planning interface between the combatant commanders and the Intelligence Community. This component has significantly streamlined the planning process and contributed directly to the maturation of our efforts.

- **Support to the global war on terrorism**

STRATCOM provides tailored, deployable Strategic Support Teams that combine the capabilities of the JIOC, located in San Antonio, with support elements from many other STRATCOM functional mission areas. Additionally, as we prosecute the war on terrorism, effective IO is becoming even more essential to our success. Supporting Special Operations Command (SOCOM), Southern Command (SOUTHCOM), PACOM, European Command (EUCOM), and CENTCOM for global war on terrorism and IO planning, JFHQ-IO works to provide an IO perspective, broader and deeper than any one RCC staff can, thus allowing us to better achieve required global effects in support of national strategic objectives. Our U.S. Strategic GIC will interface with other organizations to provide Time Sensitive Planning (TSP) as well as Crisis Action Planning. TSP oversight expertise will reside in the

GIC and will formalize and codify STRATCOM's standard operating procedures, drawing on all organizational elements so as to provide global effects in support of all combatant commanders.

- The Way Ahead

The future of global IO requires us to better define our operational battlespace. STRATCOM is developing a common operational picture based on inputs from all available DOD and intelligence sources. We are also developing measures of effectiveness, with corresponding metrics, allowing us to gauge the success or failure of a specific IO course of action.

The challenge is melding the art and science of IO with emerging technologies, training and educating senior warfighters in these concepts, and, most importantly, developing a cadre of military leaders with sound IO skills.

#### *Global Ballistic Missile Defense (GBMD)*

In my statement presented to the full Senate Armed Services Committee on March 11, 2004, I discussed the status of STRATCOM's GBMD mission. Missile defense concepts have evolved from separate efforts focused on the terminal intercept of short and medium range ballistic missiles. The single entity of GBMD now includes mid-course intercept of intercontinental ballistic missiles (ICBMs), and, in the years ahead, development of a multi-layered missile defense system contributing to the defense of the U.S., our allies, and our interests abroad. STRATCOM is developing the GBMD concept of operations and the battle management architecture in order to provide full capabilities for RCCs' defensive employment.

The IDO is the first increment of a capabilities-based approach in developing and providing GBMD. Initial capability will include the ability to detect a launch, display the data for decisionmakers, relay command and control execution decisions, and then to fire a ground-based interceptor. Our plan calls for a continued assessment of the Ballistic Missile Defense System (BMDS) capabilities as they are developed and fielded by the MDA. Fielding a layered and integrated GBMD system is best accomplished in a spiral manner. An initial capability, followed by evolutionary improvements, provides commanders with both operational flexibility and an increased range of system design options based on extensive testing and assessment.

#### *Global C<sup>4</sup>*

Future ISR systems, along with new weapons platforms, are expected to at least double the current demand on the global communications infrastructure. (During Operation Enduring Freedom (OEF), General Tommy Franks required 32 times more bandwidth than did General Norman Schwarzkopf during Operation Desert Storm (ODS).) Change Two of the UCP directs STRATCOM to coordinate C<sup>4</sup> capabilities in support of strategic force employment.

- Providing Robust Communications Architectures

The DOD is developing the Global Information Grid—Bandwidth Expansion (GIG-BE) to address the growing bandwidth requirements. This program is key to enabling the vision of universal situational awareness for the warfighter. GIG-BE is scheduled to provide a fiber connection to over 100 sites by the end of fiscal year 2005, providing much needed, wideband terrestrial connectivity. Once completed, GIG-BE will provide a robust, optical Internet Protocol Network that the warfighter can post and access information at multiple levels of classification.

- Information Assurance (IA)

The DOD established the IA Vulnerability Management (IAVM) program in 1998 to notify combatant commands, Services, and DOD agencies about network vulnerability alerts and countermeasures information. In our assigned role of directing DOD-wide computer network defense, the IAVM program is one of the key means we use to rapidly update the security of DOD computers.

We are working to improve our ability to automatically apply software patches across large networks, correct vulnerabilities identified through the IAVM process, and automatically verify patch compliance. This is a formidable challenge; DOD networks are complex, with over 3 million computers and a wide variety of operational configurations. Our partnership with industry will help us develop the best approach.

The warfighter of today accesses information by sifting through networks stratified by classification and membership. The GIG-BE will result in a more easily accessible network providing multi-level security information to authorized users. Enforcing need-to-know while enabling need-to-share presents DOD IA personnel the challenge of moving from a defense-in-depth mindset to an IA-throughout approach.

As the DOD moves from the Defense Information Infrastructure (DII) to the GIG-BE, it also brings a new approach to network defense. With the DII, our efforts were focused on defense in-depth, with layers of defense to keep intruders from breaching



our information fortress. In contrast, the GIG focuses on defense throughout. This concept incorporates a model that recognizes intrusions may occur, and allows the network to remain functional even as the infection is being cured.

- Transformational Communication System (TCS)

A second fundamental requirement for our information networks is to achieve the “Power to the Edge” vision of John Stenbit, former Assistant Secretary of Defense for Networks and Information Integration. He said, “We must replace top-down operations with distributed operations—and use information technology to empower whomever is in need of a solution, regardless of where that individual is.”

Developing this type of network requires reshaping our security philosophy and technology. Identity management must focus on end users, applications, and services. This will enable distributed computing between allied components using applications able to securely communicate with other applications. STRATCOM is working closely with the OSD staff and the Transformational Communications Office to develop the policies and architectures needed to realize the vision of the TCS.

#### ISR

Change Two of the UCP tasks STRATCOM with planning, integrating, and coordinating DOD ISR in support of strategic and global operations. Day-to-day operational control of DOD ISR assets will typically remain with the RCCs.

STRATCOM is applying its unique global focus to planning and executing the DOD ISR mission. In effect, DOD ISR will be employed as a weapon system against specific strategic objectives and priorities. Each platform allocation will be planned to achieve specific effects and will be evaluated against that objective. New relationships and mechanisms are being developed to bring existing expertise and capabilities together in new, more powerful ways.

To fulfill this mission, STRATCOM has organized intelligence and operations into an ISR Division that is unique among combatant commands. By integrating the operations and intelligence elements of the DOD ISR mission, we provide a holistic view of DOD ISR to increase the synergy between those who determine the requirements, those who conduct the operations to satisfy those requirements, and the end-users of collected and processed intelligence.

The initial focus of our ISR Division is completion of the recently approved DOD ISR Implementation Plan. The timeline for transfer of the DOD ISR processes identified in the ISR Implementation Plan began with the sensitive reconnaissance operations approval process in December 2003 and will end with the ISR allocation process in October 2004. We have just completed observing the latest bi-annual allocation process and started identifying steps necessary to transfer the process to STRATCOM by the fall of 2004.

In addition to fulfilling current ISR requirements, STRATCOM is actively engaged in determining future airborne ISR needs. As the combatant command lead for DOD Airborne ISR, we will have visibility into the requirements from the theaters. Combining a composite list of theater requirements with emerging technologies allows us to develop a comprehensive list of capabilities to better support the RCCs. We will work closely with U.S. Joint Forces Command (JFCOM) to fully integrate DOD ISR into architecture and doctrine development. However, to be truly effective, we must find a more efficient means to influence the shape of DOD ISR procurement programs. The overarching goal is a more efficient, effective, responsive, and coordinated DOD ISR capability across the globe. With the responsibility for both DOD ISR allocation and advocacy, STRATCOM is uniquely positioned to provide a global view of both intelligence needs and required future capabilities.

All of this effort will also support the objectives for intelligence sharing set by the Under Secretary of Defense for Intelligence. His office is crafting policies and supporting architecture to horizontally integrate collected intelligence from the theaters with the information acquired by the national agencies. STRATCOM sees this as a significant step toward providing all users with better insight into collected intelligence and enabling the sharing of essential information among all legitimate users. We believe this concept will significantly enhance intelligence available to all users and showcase the operational potential of future persistent intelligence collectors such as Space-Based Radar.

#### IV. FUTURE OF NUCLEAR FORCE STRUCTURE

##### *Sustainment and Modernization*

- ICBMs

ICBMs have been a mainstay of strategic deterrence for decades, providing prompt responsiveness, high reliability, accuracy, rapid and flexible targeting, and a high state of alert readiness. With Peacekeeper deactivation proceeding as

planned, Minuteman III will soon be our Nation's only remaining land-based strategic deterrent. Recognizing the importance of the Minuteman III weapon system, the Air Force has implemented an aggressive life extension program for the Minuteman III ICBM force to ensure weapon system reliability through 2020.

We appreciate Congress' continued strong support for ICBM weapon systems by funding reliability upgrades to critical components of the Minuteman III. These include the Guidance Replacement Program, Propulsion Replacement Program, Propulsion System Engine Life Extension, Safety Enhanced Vehicle Program, and Command and Control, Security and Cryptography Upgrades. Finally, we support an Analysis of Alternatives that will examine follow-on systems to the Minuteman III.

- **Bomber Force**

The long-range bomber fleet is the second essential element of the Nation's strategic deterrent force as well as a primary element of our conventional Global Strike capability. The B-52 Avionics Midlife Improvement Program remains a high priority for STRATCOM and is critical to sustaining the platform into the next decade. Of equal concern is keeping the B-2 radar replacement program on track.

The viability of our bombers in a nuclear and conventional role requires unimpeded access to increased bandwidth as well as secure, survivable, and endurable global communication capabilities inherent in the next generation satellite communication constellations. Robust command and control, coupled with the recently demonstrated value of real-time, in-flight bomber weapon re-targeting, require that we continue to synchronize the fielding of bomber communication terminals with the launches of advanced communications satellites.

- **Strategic Ballistic Missile Submarine (SSBN)**

The final leg of strategic deterrence is the D5 Submarine Launched Ballistic Missile. Life Extension (LE) and back-fit programs will provide a standardized fleet of 14 *Ohio* Class SSBNs capable of employing D5 Trident II missiles for the full hull life of these submarines (extended to 45 years). The last two submarines awaiting upgrade will complete their D5 back-fit and refueling overhauls in fiscal year 2007 and fiscal year 2008. D5 LE upgrades the guidance and missile electronics on fielded D5 missiles and procures additional missiles to meet system reliability and accuracy testing needs for the life of the program, while also providing a sufficient quantity of missiles to fully load out 12 SSBNs.

The conversion of the four *Ohio* Class SSBNs to Guided Missile Submarines (SSGNs) is an example of modifying existing platforms, concepts and capabilities for a dramatically different military role. SSGN conversions are on schedule and are being completed in conjunction with scheduled Engineering Refueling Overhauls (EROs). The boats will be equipped with conventional cruise missiles, extensive special operations capability, and will be assigned evolving new missions. The U.S.S. *Ohio*, U.S.S. *Florida*, and U.S.S. *Michigan* have entered ERO and are proceeding on an aggressive conversion schedule with deliveries scheduled for 2005 and 2006. The U.S.S. *Georgia* is scheduled for ERO in 2004 and conversion will be completed by 2007.

- **Stockpile Stewardship**

In addition to our vital life extension and modernization programs, we are working closely with our partners in the DOD, DOE, and Congress to ensure our nuclear stockpile remains safe, reliable, and credible. As the Nation's nuclear stockpile continues to age, we must carefully monitor its condition. Through the NNSA's Science-Based Stockpile Stewardship Program, we continue to improve our surveillance, modeling, simulation tools and processes in order to provide the critical data on aging effects, component reliability, and physics phenomena we require in the absence of nuclear weapon testing. Past reductions in nuclear weapon infrastructure capacity require that the essential warhead life extension programs be carefully sequenced with scheduled warhead dismantlement so as to provide just-in-time delivery to meet operational deterrent force requirements. We are working closely with the NNSA, the national laboratories, and plants to shape their support to our future stockpile. With the production complexes operating near peak capacity, we will need to optimize the balance between essential life extension programs and dismantlement work.

A 2003 congressionally mandated panel, led by Dr. John Foster, Jr., reported that our nuclear weapons program must be balanced between maintaining the existing warheads and the need to transform elements of the existing stockpile for the future. As we reduce our nuclear forces toward the goal of 1,700–2,200 operationally deployed strategic nuclear warheads by 2012, we must concurrently analyze and research advanced concepts in order to realize the vision of the Foster Panel and the NPR. The results of this research will, in turn, enable objective, fact-based discussions on very important deterrence and policy issues.

- Assessment and Testing

The United States' nuclear stockpile has a weighted average age of over 20 years, and we are the only nuclear power without a current capability to build a complete nuclear weapon. The Science-Based Stockpile Stewardship Program supports ongoing research and development (R&D) of new advanced technologies and analytical tools to assess the health of our aging stockpile without a current need for underground testing.

Since 2000, the DOE has used the Advanced Computing Initiative as an integral part of the Science-Based Stockpile Stewardship Program to analytically simulate nuclear explosions. These computational experts and their physicist colleagues in our technical laboratories are a national treasure, trained to make sense of torrents of information obtained from those simulations to certify the safety and reliability of the current stockpile.

## V. SPACE OPERATIONS

Across DOD, space is both a major integrator of missions and a global enabler for our forces. Our space assets gather and disseminate real-time data on virtually any location on the globe, as well as provide essential command and control capabilities to forces anywhere on the planet. That is why STRATCOM elected to embed space operations throughout our organization rather than treating it as a specific, stove-piped mission area. U.S. dependence on space, and the potential corresponding vulnerabilities, demand that our National Security Space interests be addressed as top national security priorities. Our focus includes:

### *Improving U.S. Launch Capabilities*

New capabilities are required to enable rapid augmentation, replacement, or repair of satellites lost due to component failure or adversary action. STRATCOM looks to the Air Force, National Aeronautics and Space Administration (NASA), and industry partners to expedite delivery of a more effective, next-generation launch system.

### *Resolving Space System Vulnerabilities*

Operations in Iraq demonstrated that adversaries can and will challenge our ability to use space assets. The attempts to jam our global positioning system (GPS) and degrade the accuracy of our precision weapons, in Navy parlance, were a "shot across the bow." DOD must be able to monitor the health of our essential systems, advance our space situational awareness, and respond appropriately to sustain our national on-orbit capabilities. In support of the leadership of the DOD Executive Agent for Space, Peter Teets, STRATCOM is fully engaged in assessing and strengthening all elements of our space systems.

### *Space Based Infrared System (SBIRS)*

The potential provided by the developing SBIRS will be a key contributor to greater capabilities in the mission areas of theater and global missile warning, missile defense, technical intelligence and battlespace characterization to support real-time warfighting operations. As designed, SBIRS will expand our ability to detect shorter-range missiles with systems designed for both tactical and strategic requirements. Once operational, SBIRS will not only represent our primary source of initial warning, but will also represent the first link in the chain of a layered, integrated missile defense. Deployment of a capability such as SBIRS is essential to replace legacy systems, some elements of which are now operating well beyond their intended life.

### *Satellite Communications*

Military satellite communications will remain our primary means of providing dedicated, secure and/or hardened command and control capabilities for worldwide military operations. During the past year, we launched the final satellites to complete the Defense Satellite Communications System (DSCS), Milstar, and Ultra High Frequency (UHF) follow-on constellations. These systems have served us well for decades and many have lived far beyond their projected life expectancy. As a result of this extended service life, deployment of more modern and more capable replacements is needed immediately. The capabilities represented by these programs will be sustained and improved with the launch of the next generation of satellite systems beginning with the Wideband Gapfiller Satellite in fiscal year 2005 and continuing through the launches of the Advanced Extremely High Frequency (AEHF) and Mobile User Objective System (MUOS).

The Wideband Gapfiller program consists of five high capacity satellites launched from fiscal year 2005–2010 that will replace the aging DSCS and Global Broadcast

Service satellites, providing DOD with high-capacity, wideband service for the Nation.

The AEHF program is the follow-on to Milstar. Currently scheduled to launch three satellites during fiscal year 2007–2009, AEHF provides up to 10 times the capacity of Milstar, a significant increase in coverage, and the ability to support twice as many networks. It will support national, strategic, and tactical users requiring protected, anti-jam, survivable communications for national crises, Emergency Action Message dissemination, Integrated Tactical Warning/Attack Assessment, missile defense, presidential secure voice conferencing, and interoperability with selected international partners.

The MUOS will field five UHF satellites to provide the warfighter on-demand, high capacity communications to ISR, and weapons system platforms on the move. This system is designed to alleviate the need to purchase expensive, commercial satellite services. MUOS launches currently are scheduled for fiscal year 2009–2011.

Investments in replacement technology and capacity will help maintain the U.S. as the pre-eminent space faring nation well into the future. STRATCOM will remain engaged as these programs are developed and procured to monitor progress and ensure warfighter requirements are clearly articulated.

STRATCOM is working with the Joint Staff, Defense Information Systems Agency (DISA), and, as appropriate, the commercial satellite industry to develop a methodology whereby DOD can assure future satellite communications systems are designed, funded, fielded, and sustained as an end-to-end communication system. In the past, complex communications systems routinely were procured in parallel, as separate elements, and often by many organizations. Due to increased system complexity and the number of segments involved, an end-to-end synchronized acquisition process is essential. We must streamline the process and develop a procedure to centrally fund and manage seamless, integrated, on-demand capable satellite communication services to meet national security needs.

## VI. GLOBAL INTEGRATION AND COOPERATION

### *Integrating the GOC*

On April 15, 2003, STRATCOM published an overarching operational concept to incorporate changes driven by the assignment of our global missions. Central to this document is the creation of the GOC. The GOC and its supporting command elements will enable STRATCOM to provide responsive support to the President, Secretary of Defense, combatant commanders, and agencies. Additionally, the GOC, with support of our components, will develop and leverage global battlefield situational awareness and present decisionmakers with full spectrum courses of action that integrate all STRATCOM's missions and capabilities.

Within the GOC, we will also perform space operations including space control, space support, and force enhancement. The GOC will enable STRATCOM to better execute our assigned missions by providing improved responsiveness and better command and control of our missions by placing the responsibility for mission support and execution under a single integrated operations center.

The Combatant Commander's Integrated Command and Control System (CCIC2S) is the integrated battle management command and control engine for STRATCOM. CCIC2S integrates fixed and mobile command and control (C2) systems to support our missions and RCCs. CCIC2S must be responsive to the combatant commander's vision and "evolve to a highly responsive and cost-effective sensor-to-decision-maker-to-shooter capability." It supports spiral development and delivery of air defense, missile warning, space surveillance and defense, and common C2 service capabilities.

## VII. CHALLENGES AND OPPORTUNITIES

### *Strengthening Components and Agency Relationships*

We continue to seek the proper composition and alignment of components to accomplish our missions while allowing flexibility as our missions evolve. In this area, we have accomplished the following:

- On October 1, 2003, the Commandant of the Marine Corps directed the activation of a Marine Corps service component command called U.S. Marine Corps Forces, STRATCOM (MARFORSTRAT) to support our mission areas.
- We established command relationships to leverage capabilities of the NSA, DISA, and JIOC to provide an armory of IO capabilities.

- The Cruise Missile Support Activities previously assigned to the PACOM and JFCOM were realigned under STRATCOM to enhance Global Strike capabilities.

We have become more efficient in organizing our components and are still exploring several opportunities for further realignment of component support in order to avoid unnecessary and duplicative headquarters growth. In those instances, we are seeking mechanisms allowing us to interface with appropriate senior leadership to access the centers of excellence and proven capabilities resident within their subordinate organizations. We call it “capabilities-based componency,” and it is a construct defined by access to, versus ownership of, resources essential to the accomplishment of our diverse missions.

Partnerships with civilian agencies, private industry, and academia are also vital to successful accomplishment of our missions. As we continue to establish new relationships and enhance existing ones, we remain focused on refining effective and efficient processes in the common pursuit of enhanced national security.

#### *Strengthening Reach-back Capabilities, Joint Exercises, and Training*

DOD is transitioning toward smaller, more agile forces, decreasing the forward footprint of our personnel in theater. To enable mission success for these agile forces, we must provide improved situational awareness and command and control capabilities. This requires unprecedented reach-back to planning capabilities, intelligence products, and other specialized expertise.

A DOD oversight committee is crafting a roadmap for leveraging technologies to provide seamless distributed operations, or reach-back to supporting commands and elements. Developing GIG-BE will greatly improve this reach-back capability. By moving digits, not people, we reduce not only transportation and support costs, but the number of personnel placed in harm’s way. Reach-back capabilities proved highly successful during OIF in supporting targeting, planning and information operations.

In parallel, a specialized team of 35 personnel was sent to support CENTCOM by providing specialized space and information operations planning and execution support. Referred to as a Space and Information Operations Element, this team represents a first step in developing connectivity back to our headquarters for broader access to specific STRATCOM expertise, making our entire headquarters a trusted agent for the RCC.

In the future, we anticipate opportunities for STRATCOM Support Teams to train and/or exercise regularly with the RCCs, thereby building relationships that are well understood before crisis or conflict looms. If requested by the RCC, they will be forward deployed in time of conflict. Alternatively, if that commander were comfortable with reach-back support from this team, they would provide the regional commander with the full spectrum of capabilities from our GIC at Offutt Air Force Base.

As STRATCOM continues to mature our recently assigned global missions, we must develop robust training and exercise programs to test the tactics, techniques, and procedures envisioned in our integrated concept of operations. Our annual major exercise, Global Guardian, has traditionally been a nuclear operations-focused exercise. We are dramatically reshaping that construct and creating a new exercise series that better captures the broad range of new responsibilities while still supporting the essential zero-defect focus on our legacy mission. The Strike Directorate continues to coordinate with RCCs on the command and control structure required to simulate integration of full spectrum Global Strike missions into future regional exercises.

In December 2003, we successfully demonstrated support to a RCC (PACOM) in Terminal Fury 04 in the areas of Global Strike, IO, Space Operations, and ISR. Using extensive reach-back opportunities and Strategic Support Teams, it afforded STRATCOM the opportunity to gain hands-on experience in areas such as planning, executing, and recovering Global Strike missions across regional boundaries. By working closely with PACOM in this exercise, we further developed a regional context and improved capabilities in our new mission areas to extend to all RCCs. The coming year undoubtedly promises new challenges and greater opportunities.

#### VIII. CONCLUSION

As STRATCOM reshapes the heart of the Nation’s strategic capability, we are required to study new deterrence concepts to provide the President with a wider range of military options that bring to bear every element of national power. The warrior Sun Tzu said, “To win without fighting is best.” A fundamental principle remains that deterrence has credibility only to the extent we back it up with capability, de-

termination, and resolve. STRATCOM provides credibility through its cohesive package of both new and legacy missions, even as we explore new deterrent concepts to serve the Nation in a very different future.

STRATCOM is ready to meet the challenges of the future. We are mindful of the magnitude of the task before us, and confident in the talent of our staff, our components, and our mission partners. In the words of Abraham Lincoln, "The dogmas of the quiet past are inadequate to the stormy present. The occasion is piled high with difficulty, and we must rise with the occasion. As our case is new, so we must think anew, and act anew."

I appreciate your continued support and look forward to reporting our progress to you in the future as we continue to build the new STRATCOM.

Senator BILL NELSON [presiding]. Thank you, Admiral.  
General Lord.

**STATEMENT OF GEN. LANCE W. LORD, USAF, COMMANDER,  
AIR FORCE SPACE COMMAND**

General LORD. Thank you, Senator Nelson and distinguished members of the subcommittee. It is my honor today to appear with Under Secretary Teets, as well as Admiral Ellis and Admiral Cebrowski, to represent the 39,000 hard-working men and women of AFSPC. On their behalf, I want to thank you for your continued support of our people and our programs.

Along with our Army and Navy colleagues, as Admiral Ellis pointed out, we really put the force behind the Under Secretary and Admiral Ellis' priorities. In AFSPC we conduct space and missile operations 24-7-365, around the clock every day of the year, under the direction of our two Numbered Air Forces. Our operations are sustained and supported by both our acquisition arm under the command of Lieutenant General Brian Arnold, the Space and Missile System Center in Los Angeles, and our innovators in the Space Warfare Center.

We operate because our space capabilities provide what we think is a very real transformational effect. It was seen in Operation Enduring Freedom (OEF) as well as OIF that space capabilities were a helping hand to all joint and coalition forces. We certainly demonstrated that in recent combat operations. That helping hand we see is backed up by the clenched fist of our ready and alert missile forces that are on alert every day to continue to deter.

As we meet today to discuss and talk about the future, it is important to remember the truly indispensable power provided, as Admiral Ellis said, by these capabilities. We think our advantages in space are certainly apparent to us and are certainly apparent to our potential adversaries, and we must take all appropriate steps to protect our capabilities.

With your continued support, we will increase our focus on space force protection, to include space control and space superiority and its critical enabler, space situation awareness.

Thank you for the opportunity to be here today and I look forward to your questions.

[The prepared statement of General Lord follows:]

PREPARED STATEMENT BY GEN. LANCE W. LORD, USAF

INTRODUCTION

It is my distinct honor to appear before the committee today on behalf the 39,000 men and women of the world's finest space and missile team—Air Force Space Command (AFSPC). I am honored to appear with Under Secretary of the Air Force Peter

Teets, the Department of Defense (DOD) Executive Agent for Space, Admiral Jim Ellis, the Commander of United States Strategic Command (STRATCOM), and retired Vice Admiral Arthur Cebrowski, Director of DOD Force Transformation. These leaders are a major reason why our space and missile capabilities continue to play an ever-increasing transformational role in joint and coalition operations. They continue to push advancement of our sentinels on the high ground and our ready, safe, and reliable missiles below ground to increase the range, speed, and precision of all our forces in conflict and, moreover, to deter a conflict before it begins.

#### TRANSFORMATION

There is no better example of this transformation than we recently displayed in Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF). Simultaneously, our forces limited collateral damage, delivered humanitarian aid and saved the lives of combatants and civilians alike while conducting highly successful combat operations. General Franks, former Commander of U.S. Central Command (CENTCOM) told Congress, "The pieces of this operation which have been successful would not have been so without space-based assets . . . it's just very simply a fact." Spacepower continues to improve our battlefield speed, precision, lethality, reach and flexibility. As President Bush said on May 1, 2003, aboard the U.S.S. *Abraham Lincoln*, "Operation Iraqi Freedom was carried out with a combination of precision and speed and boldness the enemy did not expect, and the world had not seen before. From distant bases or ships at sea, we sent planes and missiles that could destroy an enemy division, or strike a single bunker." In a matter of minutes, not weeks, hours, or days as in past wars, commanders identified and engaged targets and received timely battle damage assessment. Our coalition, and our adversary, got the message: spacepower is now in the fight like never before.

The organizational and structural changes implemented after the Space Commission puts AFSPC on an even better footing for the future. The synergy between the acquisition arm of the command—the Space and Missile Systems Center, the innovators at the Space Warfare Center, the Space Numbered Air Force—the 14th Air Force, our missileers in the 20th Air Force, and our headquarters team is beginning to be realized. Our people are always in the fight—either through our "deployed in place mission" from our sites around the world (some of our men and women spent 180 plus days in the missile field last year, for example) or the 1,200 people deployed to the theater last year (over 436 members still deployed). Our airmen, from the most junior enlisted to the senior officers, understand they are all part of the team that doesn't just support the warfighter—they provide combat effects 24/7/365.

#### AFSPC VISION

As Operations Enduring Freedom and Iraqi Freedom continue to wind down, I'd like to share a snapshot of our Command Way Ahead. Our command vision is to be a full spectrum space combat command preeminent in the application of space power for national security and joint warfare.

We've been creating combat effects since well before we stood up as a command—I pulled my first Combat Crew Missile Alert in 1969. Our new vision is to provide full spectrum effects, from strategic (which has always been our strength) to tactical effects using nonkinetic through kinetic weapons in full combat synergy with all coalition forces.

Our framework to achieve that vision is what we call "Commanding the Future." This framework enables a complete understanding of our progress in all aspects by ensuring: we have the right enterprise and are focused both operationally and strategically; we have the right partners; we are unleashing human talent to develop space professionals with education and certification programs; we are developing new wizards who understand all the aspects of the space medium and system and creative ways of employment; we are warfighter centric and have the proper concepts of operation (CONOPs); and that we can properly transition advanced technology to warfighting and increase combat effects. Through these "thrusters," we ensure we cover all management areas as we execute our command priorities for 2004.

#### AFSPC PRIORITIES

Our first priority is developing our people to lead us into the future, and educating them through Space Professional Development—this is significant, as we have formulated a plan that ensures the success of our operators, developers, and maintainers as one warfighting space cadre. When the Secretary of the Air Force approved the Space Professional Development strategy, he took the additional step of naming me, in my position as the AFSPC Commander, the Space Professional Func-

tional Authority—the only Functional Authority residing outside of the Pentagon. We developed, tested and conducted space professional education prototypes in 2003, and this year we'll bring both the initial Space 100 and the advanced Space 200 courses on-line for Space Cadre members at the 8–10 year point in their careers. Finally, I approved identifying Space Cadre members and associated Space Cadre positions using Space Experience Codes (SPECs). These SPECs will become the common terminology linking the experiences that identify the individual and the position, helping us to inventory capabilities and requirements for all Space Professional Cadre members.

With the proper focus on people, we must improve our capabilities and deliver on near term commitments. Improving missile warning systems remains one of our top priorities. We need to upgrade our missile warning that served us well throughout the Cold War, to be more responsive and more capable to our forces in the field. We stretched the Defense Support Program (DSP) system hard for tactical missile warning, but our forces deserve increased capability to precisely determine launch and impact point for both warning and engagement of incoming enemy missiles. With just one DSP left to launch, we can't wait for a degraded constellation. Degraded strategic and tactical missile warning would present significant national security challenges—it would severely handicap national missile defense and strategic response through tactical warning to warriors in the field. We will continue to push Space Based Infrared capabilities in the near term.

We will also maintain our assured access to space with multiple new launch vehicles and developing operationally responsive spacelift and spacecraft. Our Operationally Responsive Spacelift (ORS) initiative is progressing well. The Mission Needs Statement (MNS) was validated by the Joint Requirements Oversight Council (JROC) in April 2002 and we're in the midst of an ORS analysis of alternatives (AOA) that should be completed mid-2004. The fiscal year 2005 presidential budget also includes funding for an Air Force/Defense Advanced Research Projects Agency (DARPA) demonstration called Force Application and Launch from the continental United States (CONUS) (FALCON). However, we are stressing our newest, state of the art rockets known as Atlas V and Delta IV. These two contractor teams, plus our new group of launch professionals—acquirers and space operators now on one team—are all focused on mission success in each and every operation leading to launch. Our focus is delivering on the promises of the Evolved Expendable Launch Vehicle (EELV) fleet and getting toward more responsive launch without sacrificing mission success.

A continuing priority is space superiority and understanding all avenues that adversaries could take to counter our capabilities. Space superiority is just as important as gaining and maintaining air superiority in times of conflict. It is our fundamental duty to ensure our advantages in space don't become vulnerabilities. Each time the higher ground was sought throughout history, adversaries developed capabilities to remove the advantage. We are very concerned about space force protection to ensure all our space forces are survivable, and we are exploring rapid reconstitution capabilities. However, fundamental to space superiority is the capability to detect, categorize and counter attacks on spacecraft, ground stations and the links between them. Every new contract we let must take into account all appropriate space situation awareness and protection measures.

In 2004, we'll continue modernizing our ICBMs while exploring other alternatives for future force application. Our space capabilities were the helping hand of our coalition force operations because they were backed up by the clenched fist of our missile force—always alert and providing “top cover” by deterring any adversary from using weapons of mass destruction (WMD) against our Nation or our forces around the world. In 2003, we strengthened that fist even more with over 200 new guidance sets and 80 missiles with new propellant. We'll continue to increase those numbers this year and conduct an AOA on the next generation Land Based Strategic Deterrent.

Over the next year, we will also plan for future advancements in force enhancement through GPS modernization, Space-Based Radar (SBR) development, and advanced satellite communications. GPS has proven its worth. It is the world's largest free public utility with numerous applications that improve our daily lives. The military value of this system is unquestionably the driving force behind our transformation. We look forward to launching the next generation of GPS to keep our forces on the leading edge. SBR will provide surveillance and target tracking around the clock and in all weather. The situational awareness provided by the SBR constellation promises to be just as revolutionary as GPS has been. We must continue to ensure SBR is responsive to our forces in the field and the power of this system is not only used for intelligence preparation of the battlespace, but provides the much needed capability to ID and track targets in theater, real time. Trans-



formational Satellite (TSAT) Communications serve a fundamental need of all our expeditionary forces—the expanding need for protected, reliable, long haul communication. We are looking hard at the interoperability between Intelligence Community and DOD requirements. We are also weighing associated affordability/schedule risks and the appropriate tradeoffs leading toward a fiscal year 2012 (November 2011) TSAT first launch.

These priorities, executed through the Commanding the Future framework, will solve our most pressing needs leading into both near and mid term to achieve the needed effects on the battlefield by all members of our joint and coalition team. AFSPC will be ready for whatever the future brings by continuing to innovate, develop, design, launch, and operate leading-edge space and missile systems.

Thank you again for the opportunity to appear before you today. I look forward to your questions.

Senator BILL NELSON. Thank you, General.  
Admiral.

**STATEMENT OF VICE ADM. ARTHUR K. CEBROWSKI, USN  
[RET.], DIRECTOR, OFFICE OF FORCE TRANSFORMATION,  
OFFICE OF THE SECRETARY OF DEFENSE**

Admiral CEBROWSKI. Thank you, sir. It is a pleasure to be here. I suppose what I should do is point out first of all that, unlike my colleagues here to my right, I am really not in the space business; I am in the transformation business. So I am really not here to talk about programmatic for our larger space programs or make declarations about what is or might not be transformational. I have a fondness for microsatellites, but I am really not here to talk about that either, although we are moving into the age of the small, the fast, and the many, not just in space potentially but in all aspects of military operations.

Actually, I am here to discuss a new and broader and complementary business model which could decidedly expand our capabilities base, our technical base, and our competitive base. I really only have three points about that.

First, the barriers to competition are falling in several key elements of military competition. Space is one of those areas, perhaps more than any other area, and consequently the question before us is how do we respond to that.

Second, the old model has a lot of goodness in it, and it pushes to the fore competition on the basis of technology and technical complexity, where we have the ability to indeed do quite well. We need to expand that to a new broader basis for competition with new metrics, for example, and metrics which are more output-oriented rather than the technical insertion piece.

Lastly, there are a few small but very important steps that need to be taken to indeed broaden our space capability and bring the new model on line. We are in a position right now where we judge the strategic context to demand that we be swift, bold, and very specific about what we do. I believe that as the major defense power in the world, we must dare to compete with ourselves to ensure perfection, to set our own standards.

With that, I am very pleased to be here again and eager for your questions.

[The prepared statement of Admiral Cebrowski follows:]

PREPARED STATEMENT BY ADM. ARTHUR K. CEBROWSKI, USN

Chairman Allard, Senator Nelson, and members of the subcommittee, I'm honored to have the opportunity to address the subcommittee, and to join the leaders of our

National Security Space (NSS) team to address current space issues so vital to our Nation and our military forces.

During my April 2002 testimony before the Senate Armed Services Committee, I noted that the barriers to competitive entry are falling as a result of new technologies made possible in the age of information. Nowhere is this truer than in space.

Now it is 2 years later, and transformation across the force is happening much faster than we expected when we announced the journey just 28 months ago. Not just a concept and not just action in the future, transformation is happening today. It is happening due in large part to the information and power derived from our vital space capabilities.

Our space capabilities are a prominent feature of the global advantage we currently enjoy. However, the space technology context is changing, making possible a movement to an additional business model and an expanded business base for space. Cost per kilogram on orbit is still a problem. But, capability per kilogram on orbit is soaring due to advances in information technology. This makes the alternative model feasible. The door for small, micro and nanosatellites is open, allowing us to redefine cost and mission criticality curves, increase transaction and learning rates and the ability to assume risk. As we move towards the age of the small, the fast and the many, it is time to start thinking about applying that movement to our model for space. Adopting this complementary and broader business model will help us ensure space superiority well into a future where space will be yet more responsive to our joint military forces. In short, it is within our capability to create options, a process which itself can be a competitive advantage.

Operationally Responsive Space (ORS) is that new and complementary business model. At its core are: (1) the defining of a joint military demand function; and (2) the focus on providing joint military capabilities for our operational and tactical level commanders. Finally, the model incentivizes output rate and uses a co-evolutionary strategy of concept-technology pairing, providing for iterative advancement in operational capabilities.

#### PROGRESS OF SPACE TRANSFORMATION

Our NSS team has made great strides in its short 45-year history. Rooted in the Cold War, the NSS program was viewed as a source of national power. There was a clear connection between space and our strategic deterrent forces. The Nation capitalized on converted weapon systems to develop the ability to launch small payloads in low Earth orbit. Then we graduated to larger payloads in higher orbits vital for detecting the ballistic missile threat posed by the Soviet Union.

Thirty years later, the military value of space capabilities became apparent during Operation Desert Storm (ODS), which many have deemed the first space war. In reality, our space forces, like our traditional military forces, used a robust Cold War force structure to defeat the Iraqi Armed Forces and expel them from Kuwait. Nevertheless, ODS highlighted the importance of being able to distribute or operationalize these global space utilities to be operationally relevant in theater.

One need only compare ODS with Operation Enduring Freedom (OEF) or Operation Iraqi Freedom (OIF) to see how successful we have been at operationalizing our global space forces. One of the key differences between ODS and OIF is the distribution of satellite-based wideband communications down to the tactical level. In ODS our military forces numbered 542,000 and they had 99 megabits per second of bandwidth available. In OEF/OIF bandwidth rose to 3,200 megabits per second while our forces were reduced to 350,000. Satellite communications provided the backbone for Blue Force Tracking, shared situational awareness down to the individual level and allowed operational and tactical level commanders to exploit an unprecedented speed of command. The Nation's space capabilities directly impacted speed of maneuver, the tempo of the fight, and the boldness and lethality of our forces.

Additionally, the advances made in missile warning were significant. In ODS, using our Defense Support Program (DSP) satellites designed to detect the Cold War ballistic missile threat, we were able to give rudimentary theater missile warning. However, in the 10 years since ODS, advances in ground processing, on-orbit software, organizations, command and control and theater warning concept of operations made our warning capability dramatically more robust allowing for theater battlespace characterization.

Finally, it is obvious that, in the years leading up to OIF, great advances were made in distributing the Global Positioning System (GPS) signal to weapons. This has significantly increased our precision strike capability.

These examples of increased bandwidth, theater missile warning capability, and precision, show just how important space capabilities are to transforming our force and how far we have come in operationalizing these capabilities. But all along the way, the operational and tactical benefits were what could be teased out of the larger NSS systems.

#### THE LINK TO STRATEGY

One may ask why we need a new model; given the success of our existing force. From all indications our space forces are providing us with an asymmetric advantage that no adversary currently enjoys. Although that is clearly true, evidence suggests that our space supremacy is not guaranteed. An adversary might turn our asymmetric advantage into an asymmetric vulnerability if we cannot maintain space supremacy. The United States is the most heavily space dependent nation in the world and that holds true for our joint military forces—this will continue to hold true for the foreseeable future.

Alfred Thayer Mahan, a prominent naval historian and strategist, described the oceans as a “great common.” Today, space and cyberspace must be added to the list of commons that must be controlled. One of the recognized barriers to becoming a hegemonic power is the ability to operate in and control the commons. Therefore, we can expect nations with hegemonic aspirations to try to erode our ability to operate effectively in the commons and to achieve the ability to control the commons for their own use.

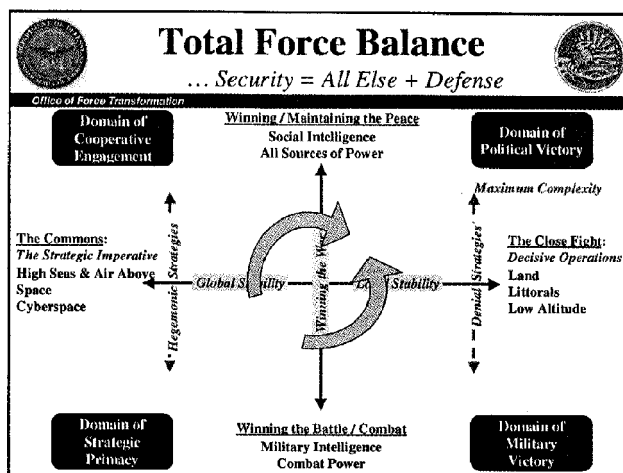
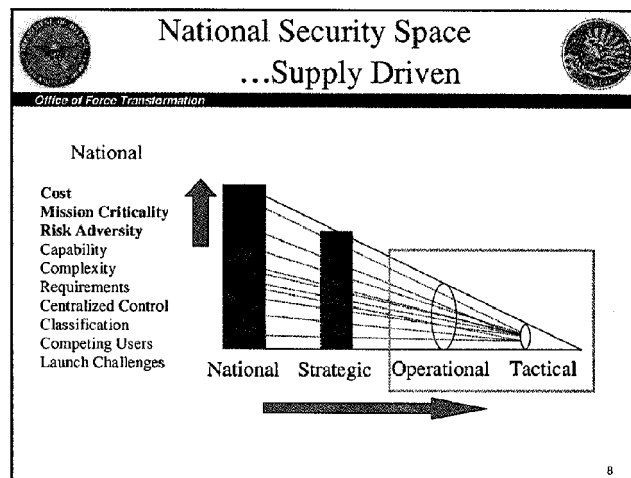


Figure 1

The barriers to entry into space, which were so high during the Cold War, have eroded. No longer is space reserved for great power nations alone. Space has become much more common, and today a nation needs not be a space power to employ space power. The commercial space communication and remote sensing industries that emerged in the 1990s provide power derived from space, once reserved for the most powerful of nations, to weaker nations, organizations and even individuals. Additionally, the increasing capabilities of small, micro, and nano class satellites have moved them from a segment more suited for university backed experiments to a niche with potentially significant military utility. Today, nations can contract with universities to not only build microsatellites, but also to transfer the knowledge required to develop them. The United States, the leader in space, has taken a back seat to other nations in exploiting these smaller segments of the space industry. As we are at the threshold of transforming ourselves to a network centric military, using the coherent effects of distributed military forces and systems to achieve commander's intent, the newer smaller elements of space capability emerge as a toolset providing virtually unlimited potential.

In the past 2 years, other nations have launched 38 microsattellites while our contribution in this segment of the market is very modest. Furthermore, our Space Test Program as indicated by the number of satellites launched for test is in decline.

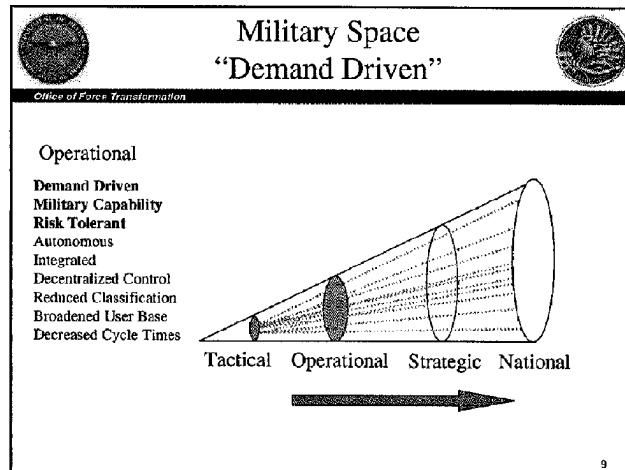
The Cold War attributes of our existing space program limit our ability to maintain space superiority required by today's rapidly changing strategic environment. Specifically, the mission criticality that grew out of the Cold War and the very high cost of our complex and highly capable space systems lead to a high consequence of failure. The required corresponding risk mitigation strategy incentivizes expensive, long lasting, heavy, multi-mission payloads. These same attributes also impact our ability to launch our satellites into orbit. They require larger, higher cost launch vehicles, with low launch rates and significant mission assurance oversight.



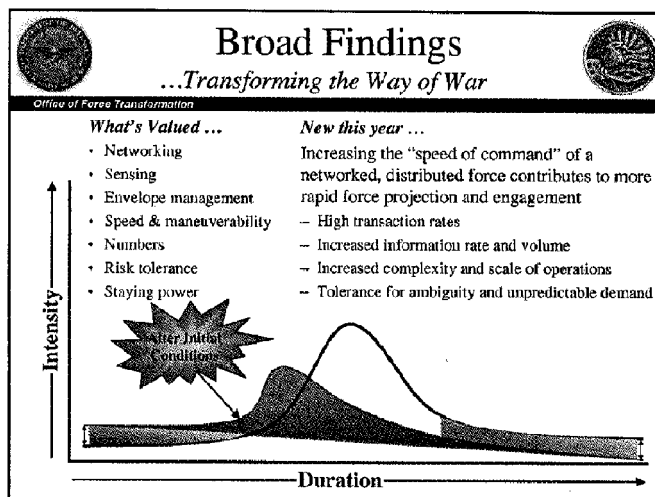
**Figure 2**

#### ATTRIBUTES OF OPERATIONALLY RESPONSIVE SPACE

ORS is a new approach. Rather than trying to operationalize national/global space utilities, this model designs military capabilities directly for the operational commander. The key attribute of the ORS business model is that the field commanders drive the demand. That demand is the joint military capability required to meet operational and tactical level needs. Rather than treating our operational and tactical level commanders as lesser included, this business model designs a capability to meet their specific warfighting needs.

**Figure 3***Demand Function*

The operational level of war is a theater level of war, and the operational commander is normally established only in a time of conflict. This definition helps put the demand function into context. The operational commander requires a theater capability to satisfy a joint warfighting need (vice a national intelligence need) that is available during joint warfighting planning timelines. This demand function changes the space calculus and the cost, risk and mission criticality variables that incentivize lower cost, smaller, satellites and single mission, sub-optimized payloads with shorter life spans. The time function for responsiveness is then driven by adaptive contingency planning cycles rather than predictive futures or scripted acquisition periods. The objective is agility and dynamic fitness, not optimization.



**Figure 4**

#### *Military Capability*

Today's joint force commander requires capabilities that are horizontally integrated transmission control protocol/Internet protocol (TCP/IP) accessible, flexible, interoperable, joint down to the tactical level and are risk tolerant. Increasing the speed of command, which proved so vital in OIF and OEF, requires high transaction rates, increased information rates and volume, and a tolerance of ambiguity from unpredictable demand.

#### *Autonomous*

ORS capabilities necessitate the ability to launch and autonomously reach the required orbit without months of state-of-health checks, calibrations, and configurations by large squadrons of satellite controllers.

#### *Networked*

When space is accessible to the tactical or operational users, it changes the manner in which relationships occur and the way that organizations behave. While micro or nano satellites may not offer technologies that are groundbreaking, they can significantly alter the capabilities of a wider user base. The collective produces an understanding that is not replicated or deliverable by any single analyst or structured hierarchy. Leveraging space access by the entire defense establishment changes the methods and techniques that can be adopted by future users.

In a network centric force each satellite becomes a node within a tiered network of sensors such as larger space systems, unmanned aerial vehicles (UAVs), air and surface assets. A network centric approach uses the internet protocols throughout the entire lifecycle of the satellite. That means integrating the payload remotely and using the internet protocols for preflight testing, command and control, payload tasking and data dissemination. This will allow for increased fusion of data from multiple platforms while reducing lifecycle costs.

#### *Broadened User Base*

Parenthetically, there is no reason why this must be confined to Department of Defense (DOD) needs. Rather, it could mean an organic space capability for the larger national security community. One of the objectives of ORS is to make space assets and their capabilities available to operational and tactical users and an organic part of the Joint Task Force (JTF). One specific means to do this is for space to

use the Secret Internet Protocol Router Network (SIPRNET) to task, receive and widely disseminate data. Because the SIPRNET has matured as a core U.S. warfighting command and control venue and evolved to be the de facto standard as a preferred data sharing service, the cost of gathering information has plummeted and the value of shared information content has soared. As a result both the richness of information improves and the reach of its content expands exponentially.

#### COMPLEMENTING BIG SPACE

Note that this complementary business model does not replace the larger space program. Today, small satellites cannot provide the capabilities required to meet all national intelligence needs. However, just as we have operationalized our larger space program to meet theater needs, these operationally designed theater capabilities will also enhance our national and strategic space capabilities. Specifically, these satellites will help reduce the burden we are currently placing on our national systems and the organizations that operate them, enhance the persistence of the national capabilities, assist in meeting the force structure requirements mandated by the current force planning construct, and help ensure that U.S. forces are adaptable to an uncertain future.

Another role that these systems could provide in the future is the ability to reconstitute our larger space capabilities if adversaries attempt to negate them. Although, it would not be replenishment in kind, it could provide a subset of capabilities for our national and military leaders.

#### TEST BED FOR BIG SPACE

As the pace of change in the information age is accelerating, so must the institutional transactions that create capabilities from “learning.” Stagnation of institutional learning comes at the expense of creating future advantage. Today our space forces are at risk of becoming a strategically fixed target. The cost of sticking to slower generational turnover—a cycle that currently runs 15 to 25 years for U.S. forces—is likely to be technological surprise that works to our disadvantage in future conflicts.

Besides providing operationally relevant capabilities for the joint warfighter, this new business model would serve as a test bed for the larger space program by providing a clear vector for science and technology investments, enhancing the institutional and individual learning curves, and providing increased access to space for critical research and development (R&D) payloads. Today, less than 25 percent of our space R&D payloads make it into orbit, and this is with a heavy reliance on the space shuttle.

Sound space science and technology stewardship requires that the sole superpower compete with itself to avoid stagnation. Getting new technologies into space earlier to understand the ramifications and inform our conceptual context builds a learning curve for big space and provides a look at alternative futures.

By reducing cost, increasing transaction rates, and developing standardized buses and interfaces we change our risk mitigation strategy. This will allow the United States to lower the cost of placing payloads into low Earth orbit and simultaneously increase our ability to put R&D payloads into space. Additionally, these same attributes will allow sub-optimized, simpler “wooden round” payloads to be launched into orbit.

However, the most important aspect of the test bed is the institutional and individual learning that will take place. As an institution, we will learn there are alternative methods and processes to conduct space operations that could not have been developed through our larger space program. Additionally, the smaller satellite programs will provide great venues to pair seasoned space expertise with new prospects, allowing them to “cut their teeth” in an area where failure is a data point.

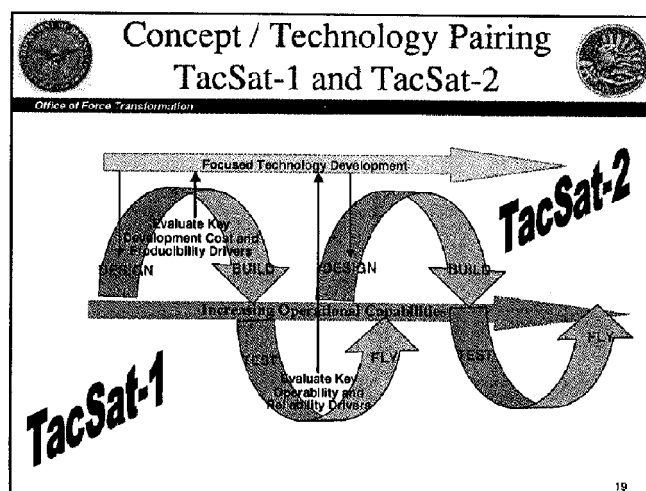


Figure 5

Finally, this business model uses a co-evolutionary process, pairing concepts and technologies in an effort to start influencing change immediately. The co-evolutionary techniques guide the ORS approach to instantiating these capabilities. The techniques are used to stimulate disruptive innovation through the continuous development and refinement of operational concepts, processes, technologies and organizations. This approach should influence technology, policy, concepts of operations, acquisition processes and public/private partnerships.

ORS provides the ability to conduct a strategy of generational science and technology (S&T) and acquisition. This new business model brings the United States "back to the future." The ORS model is similar to the space model of the 1960s and 1970s. All space systems started small and in low Earth orbit and grew bigger and higher as technology and operational requirements matured.

Analysis of the development of the GPS satellite constellation provides some key attributes that are readopted in our model.

*Creating leverage by targeting the investment of relatively small research and development dollars and the role of research laboratories.*

The GPS grew out of work done by the Service laboratories. The Naval Research Laboratory and Air Force Research Laboratory were both targeting the investment of relatively small R&D dollars towards key technologies required to develop the system. When it became apparent that DOD could not continue to fund two unique systems, the two labs were directed to get together over a Labor Day weekend and come up with a single approach. The best attributes of both approaches were put together in the final system. It was determined that the Navy had the best clocks and orbits and the Air Force had the best signal structure. The DOD directed the Air Force to take the lead in operationalizing the system and the Naval Research Laboratory was funded for continued research and development. In our ORS business model we view the research labs as matched filters for technology concept pairing to address operational needs.

*Affordable access to space*

The successful development of the GPS constellation relied on testing clocks in space. The Naval Research Lab was able to get "free piggy back" rides to space using excess capacity on the Agena rocket. The cost, timelines, and risk associated with getting piggyback research and development payloads to space today hinder our ability to advance space technologies.



### *Generational Approach*

The GPS actually grew out of a series of lab sponsored experimental microsattelites. In all there were 15 navigational microsattelites and 8 R&D sattelites. Combined, these sattelites served as stepping-stones to the operational GPS. They provided intermediate capabilities to begin developing operational concepts directly impacting the final orbital parameters adopted for the operational system.

Our business model seeks to embed experimental capabilities into combatant commanders warfighting experiments. By doing so, we can mature the operational concepts in parallel with the technology. By increasing transaction rates, next generation technology and operational concepts can be embedded into future payloads, leading to increased capability for the warfighter.

### *Public/Private Partnerships*

Another key attribute of the GPS acquisition program was the public/private partnership between the Services and Rockwell, which won the contract to build the first block of operational sattelites. For about a year, engineers from Rockwell worked with the Service laboratories to learn all the lessons to be learned prior to developing the operational system. This public/private team was crucial to the success of the acquisition program. Currently, our S&T strategy falls short on several fronts. First, access to space does not afford a robust space S&T and R&D program. Second, there is a gap in translating R&D into operational capabilities. The new business model and co-evolutionary approach seek to bridge this gap.

### THE WAY AHEAD

Over the past year, the DOD has taken great steps in embracing this new business model. My office funded the TacSat-1 experiment with the goal of providing an operationally relevant capability to the warfighter in less than a year for \$15 million. Although we expect to be right on the margins of both metrics with a planned early summer launch, a lot of progress has been made in our institutional processes.

The Air Force, under the leadership of Mr. Teets, General Jumper, and General Lord, has provided outstanding support to our ORS experiment. They have crafted a customized mission assurance approach for the oversight of a new commercial launch vehicle consistent with the nature of the TacSat-1 experiment. Additionally, they have worked closely with the commercial launch provider to come up with innovative safety processes that will ensure public safety. At the same time, they have been willing to accept risk in operational suitability and effectiveness. This process is ongoing, and real organizational learning is happening in the Air Force and in the commercial launch company.

Our TacSat-1 experiment has set the baseline for a co-evolutionary concept/technology pairing process and has helped shape a stronger relationship between Service laboratories. The Air Force is following our TacSat-1 with a TacSat-2 that builds on the modest capabilities provided by our first instantiation. This is a realistic first step of generational science and technology efforts.

Critical to achieving the agility and flexibility demanded by an ORS model we must develop standards for modular/scalable satellite buses. This must be a part of our future plans and will allow us to increase the utility margin of smaller sattelites.

We have forged a healthy relationship with the Pacific Command (PACOM) to imbue these capabilities into their annual combatant commander exercises.

TacSat-1 has also served to strengthen interagency relationships. The Office of Force Transformation has capitalized on the National Aeronautics and Space Administration's and the Air Force and Army Space Battlelabs' work with the Virtual Mission Operations Center. This has allowed Internet-based payload tasking and data dissemination. Additionally, we have forged a partnership with the Federal Aviation Administration, the commercial space regulators, to ensure proper liability and indemnification levels.

Finally, taking a more macro view, DOD is stepping up to making operationally responsive space a near-term capability. General Jumper, the Air Force Chief of Staff, recently announced the Air Force's Joint Warfighting Space concept. The Air Force is leading a joint team to investigate operationally responsive space technology vectors and Strategic Command is engaged to help define the corresponding vectors for operational concepts.

The leaders I am privileged to testify with today are taking the right steps to move this concept, currently in its infancy, into an operational warfighting capability.

Senator BILL NELSON. Thank you.

Let us start, Admiral Ellis and Dr. Teets, and talk about assured access to space. You know the flap that is going on between Boeing and Lockheed Martin. There are some in the DOD that would like to have only one line and there are arguments for that and there are arguments against it. Could both of you address that issue of keeping open two lines for EELVs?

Dr. TEETS. All right, sir, I would be pleased to start. I have a very strong and firm conviction that we need to maintain our two families of EELVs, the Atlas family and the Delta family. I say that from the experience that we had when at one point in time our Nation decided to put all our space delivery capability on the space shuttle and it suffered an accident. As a result our capabilities were put into question for a while. Fortunately, Secretary Aldridge had the foresight to have pre-ordered some 10 Titan IV EELVs to be used in an emergency situation and we pushed our way through that.

I believe that our Nation's space capabilities are now so important that we cannot get ourselves into a position where a single launch incident—maybe it is close to a pad and you lose the pad. You still have to be able to pull yourself together and launch again in the relatively near future. So I feel it is very important for us to have two families of launch vehicles that can give us that delivery capability, sir.

Senator BILL NELSON. Admiral.

Admiral ELLIS. I would certainly echo Mr. Teets' comments, Senator Nelson, from a number of perspectives. This is an absolutely essential capability that the Nation must have. Clearly there are some costs associated with that, but even those are under debate. The real issue is the cost of not having that.

I sometimes speak of Pascal's wager, which highlights the difference between the probabilities of an outcome and the consequences of an outcome. The consequences of being denied access in any significant measure to space by the failures that Mr. Teets hypothesized are grave and severe for this Nation and for the warfighters that we support.

So I think it is prudent that, until we get more detail or definition on the way ahead with some of the ORS initiatives, that a prudent course of action, indeed in the larger scale, a more affordable course of action, is to maintain both of those avenues.

Senator BILL NELSON. I agree with both of you.

Mr. Chairman, I am going to run make the vote.

Senator ALLARD. We will give you the benefit of your time when you return.

In the mean time, I want to follow up a little bit on his line of questioning. I have supported the idea that we have two space launch vendors and felt that we had some redundancy there in the system. Recently we received a Nunn-McCurdy notice that the program through which we buy launch services, the EELV program, is more than 25 percent over cost. The way I understand how that works, it triggers a review of the program to determine if other approaches can meet the operational requirements.

What is the status of that review and what alternatives are being considered? Dr. Teets?

Dr. TEETS. The review is in process now, Mr. Chairman, and the alternative that is being looked at is to go to a single family of launch vehicles and to compare that with the presently planned course. The reason that the Nunn-McCurdy breach occurred has to do with really the fallout from the commercial marketplace and the fact that both of our providers of launch services based their first round of EELV pricing on a strong supplemental commercial market. That supplemental market has not materialized and as a result we are essentially on notice that the next time we go out to buy EELVs, we are likely to see a significant increase in price.

Therefore, we have found it necessary to declare this Nunn-McCurdy breach, and that triggered the analysis of alternatives (AOA).

We expect to meet with Mike Wynn, the acting Under Secretary of Defense for Acquisition, Technology, and Logistics, in the latter part of April, and at that point in time a review will be held of what those analysis of alternatives tell us and we will determine a recommended course forward.

Senator ALLARD. A follow-up on that. Now, of the budget request for the EELV for the 2005 budget year, how much is specifically for assured access and what would happen if that funding were not approved?

Dr. TEETS. Actually, as we formulated our 5-year plan we anticipated additional pricing to accommodate this reduction in commercial launch activity. So as a result, while the EELV budget request is I believe \$38 million, we really need that to be able to sustain our current activity for assured access, which includes maintaining these two families of launch systems.

Senator ALLARD. Now, in the past the EELV contracts were structured such that infrastructure costs were included in the costs of the launch. What is your view on how infrastructure costs should be handled in the future? Should the Air Force fund them directly or do you believe that the contractor should include them in their launch costs?

Dr. TEETS. I would like to maintain some amount of competition in the EELV activity going forward, but I do think it is important for us to develop a strategy which does not cause either supplier to go into a death spiral of trying to be competitive or face extinction. Therefore, I think it important for us to find the right acquisition strategy that will allow us to fund infrastructure costs for both the Atlas family of vehicles as well as the Delta family of vehicles, but then move in a direction where we can incentivize the contractors to invest in their particular product line, to keep their best people assigned to those products, and to have some of the benefits that competition can bring to us.

We are in the process right now of trying to formulate that strategy, and I expect that by the early part of this summer we will have our strategy in place, sir.

Senator ALLARD. I would be very interested to know what you come up with there. If you would keep us informed we would appreciate it.

Dr. TEETS. We would be happy to do so, Mr. Chairman.

Senator ALLARD. It seems to me that both EELV vendors have performed well technically, but it is also obvious that there are con-

cerns about both. One vendor has been sanctioned and is under continuing investigation for violations of fair procurement practices during the original EELV competition. The other relies on a Russian rocket engine at the urging of the U.S. Government, but that fact potentially adds one element of uncertainty in the program.

I understand we are buying all the data we need to co-produce the Russian engines, but the cost of building a production facility is quite steep. I am sure you are aware of that.

What is your view of the advantages and disadvantages of downselecting to one EELV vendor? Would such an approach provide any cost savings?

Dr. TEETS. As I mentioned to you earlier, there is an AOA that is ongoing that will put some factual information behind the very question that you are asking. My own view is that we should proceed to the next step of determining whether or not this rocket engine that you referred to, that has been developed and designed in Russia—it is the RD-180 engine—whether or not it can indeed be produced here in the U.S. and, if it can, at what price would it be able to be produced?

That needs to be a part of this trade study that we are looking at. I think it would be highly desirable for us to have a production capability. I do not know that it is practical in terms of being able to afford it. I do know that if you look at an alternative of going to a single supplier it would be an imperative to have the capability to produce here.

Senator ALLARD. What is the status of the investigation into Boeing's violation of the Procurement Integrity Act and have any other further violations been discovered?

Dr. TEETS. The violations of the Procurement Integrity Act have resulted in Boeing's suspension. There are two Boeing companies that were suspended by the Air Force last summer. Since that point in time, Boeing has responded in a strong way to deal with the problems that were found in those two companies' behavior, and I would say that they have aggressively sought the root cause of the problem.

They have commissioned Senator Rudman to do an independent study of their ethics and awareness program. He has reported back out. They have embraced all of the recommendations in Senator Rudman's report.

We in the Air Force legal shop have been dealing extensively with Boeing to establish an administrative agreement which would allow us to have full insight, awareness, and knowledge of their ethics program and the way they are conducting their business practices going forward. When that administrative agreement is properly put into place, I do believe that we will be able to lift the suspension with confidence that Boeing has in place a system that will ensure that they are a responsible contractor in those two companies that we deal with for launch services.

Senator ALLARD. So your feeling is that they are well on a process. The sanctions have had their effect; they are doing what you anticipated they would accomplish, and that the corrective actions by Boeing are adequate?

Dr. TEETS. All indications are that that is the case, Mr. Chairman. As I say, the Air Force legal department is in the process

right now of concluding an administrative agreement which will allow us to lift the suspension. Now, it would be hard for me to predict exactly how long it is going to be before that administrative agreement is in place, but as soon as it is we will be very confident that they are a responsible contractor.

Senator ALLARD. How much time do I have left? Okay, I am going to yield to Senator Nelson. I have just 1 minute left and I want to approach this next line of questioning when I have the full time period.

Senator BEN NELSON. If you would like to go ahead and finish, that would be okay with me.

Senator ALLARD. No, I have about 5 minutes worth here on the next round.

Senator BEN NELSON. Thank you very much, Mr. Chairman.

Admiral Ellis, yesterday I know you testified that DOD needs to enhance its ISR capabilities to better locate hidden targets which could be camouflaged or protected by robust air defenses. I think ISR is important in every environment, including space obviously, and ISR is obviously one of the new missions STRATCOM has been given.

Our staff did a little checking with the folks at STRATCOM and discovered a strong desire for better technology to improve the collection capabilities of mission area experts which would improve ISR. The difficulty seems to be taking information or intelligence that currently fits on about 15 computer monitors and trying to transform that into a single monitor for easy application. That has not been achieved at this point in time.

I hope I am not tattling on some of the folks back home. I think it is something we must absolutely have. Is there a way that we could be helpful in achieving that kind of technology, if you are interested in it as well, as I assume you are?

Admiral ELLIS. Yes, sir. Of course I am very interested in it. What you have described, in a very real sense, is at the tactical level. It is reflective of the challenges that Mr. Teets and I, and General Lord and others, have been undertaking under the broader rubric of horizontal integration. In our headquarters, for example, we look at disparate feeds or databases and how we blend those all together into a coherent, integrated process. Of course, that is something that we are pursuing with our own processes and upgrades within the headquarters, and continued support for Air Force funding of that, of course, would be greatly appreciated.

However, in a broader sense, it really mirrors the challenges that we face between the operational world and the various elements that contribute so effectively to intelligence collection, and how do we bring those together in a collaborative way. Particularly, as this next generation of ISR platforms begin to be more rigorously defined technically, and that would include SBIRS, SBR, and the like, there will be an important element of bringing those capabilities together at the source, if you will, and then providing them through the appropriate processes to those that need them, wherever that might be, in the operational world or in the Intelligence Community.

So we are focused on that. We are aware that, while this presents challenges, it also gives us an opportunity as these systems

evolve and mature to fundamentally address this with a clean sheet of paper and a different approach. We are excited about it, while we do not in any way minimize the challenges that will be a part of its successful execution.

Senator BEN NELSON. Do you have any idea whether we are talking 6 months or 6 years when it comes to developing the technology, assuming that the Air Force budget is okay?

Admiral ELLIS. On the technology side, we well understand how to work protocols and those types of things. So as you could infer from my first answer, there are various levels to this challenge, and I am comfortable that we are on track to integrate the current pieces from a technology standpoint, from a shared format standpoint.

The broader ones will involve legitimately some significant cultural issues and organizational requirements.

Senator BEN NELSON. It is not all technology?

Admiral ELLIS. No, sir. There are huge issues, legitimate issues, in terms of information sharing and sensitive sources and those types of things that will need to be addressed as we move through this, and obviously ways to protect that, to protect sources, to have multi-level security, all of those elements will have to come together to ensure our success in this effort.

We are working collectively again with other elements within the OSD to move that forward as quickly as possible. Mr. Teets has been a big driver of that because he was the first to recognize that as this technology advances the requirements for this type of integration also advances and there is an opportunity here.

I defer to him if there is anything you would like to add, sir.

Dr. TEETS. I would just add that it has been a real pleasure to work with Admiral Ellis and General Lord and others within the military community to try and tackle this problem of horizontal integration, as we call it. I think we are making headway and it is hard work, but one of the things we tried to do when we put out the request for proposal for the SBR system was to insist upon an agreement for a concept of operations for how we would operate the SBR. That pulled together various elements of the Intelligence Community and the DOD. I think we are making headway.

Senator BEN NELSON. Thank you.

General Lord, out in western Nebraska, as I know you know, it is home to some intercontinental ballistic missile (ICBM) launch control centers and silos that are currently managed by or staffed by active duty U.S. Air Force personnel that are assigned to Warren Air Force Base in Wyoming. There are other silos in Wyoming and Colorado as well. Is that a role that perhaps the Air National Guard or Air Force Reserves could play? Is there a role that could be played by Reserve and Guard units in helping staff those facilities to release active duty staff for other responsibilities?

General LORD. Yes, sir, that is a very good question. We have looked at that a couple times, trying to make the ICBM mission a total force mission with Guard and Reserve support. One of the stumbling blocks we come into is a program called the Personal Reliability Program (PRP) which each individual has to be certified under. Historically it has been difficult to have people that are not on continuous active duty to be part of that program. But we have

asked that same question and we should have an answer fairly soon about is this a good way to go and get some help and relief in that program. I would be glad to report back to you.

Senator BEN NELSON. Well, it would be consistent with, I think, where some of the transformation for the Air Force might be heading, to where Northern Command (NORTHCOM) might be heading in terms of having Reserve and Guard personnel do things that are done here at home currently by active duty personnel, which obviously then would obviate the need for deployment and mobilization for other parts of the world, if they can do more of the tasks here at home.

General LORD. Yes, sir. I might add that we have five squadrons of one flight from the Guard in the space business, not part of the ICBM side, and eight squadrons in one flight in the Reserves that are part of what we do in space day-to-day. So, we want to take as many steps forward as we can in the total force and we will continue to look hard at the ICBM mission.

Sir, if you do not mind I would like to follow up on something Secretary Teets and Admiral Ellis talked about.

Senator BEN NELSON. Oh, please.

General LORD. We experimented right before Christmas this year with something to help Admiral Ellis and certainly Mr. Teets and others in the space business to do just what you asked us about, and that is the integration of these capabilities. It is something we call the Single Integrated Space Picture, with which we are able to draw on all these sensors, show what is available when, and put this together in a coherent kind of picture so that I can inform my combatant commander what is available at any given time with respect to space assets, what we are looking at, where those are.

It is a pretty comprehensive look. We are going to continue to refine that over the next year, and hopefully by the end of this fiscal year we will be able to have something that he is really proud of. We are experimenting with it right now at the 14th Air Force, our Space Air Operations Center in California, and we are starting to learn, and we will be able to, I think, set the basis for some of this integration you talked about. So we are on the way.

Senator BEN NELSON. I commend you as you try to work through some cultural, security, and technical issues to bring this all together, because clearly that will be beneficial for the entire military. To have it currently unified and then functioning for combatant commanders as well as for other staff requirements is a definite advantage for national security.

I thank you.

Thank you, Mr. Chairman.

Senator ALLARD. Thank you.

I am going to ask you about some of your testimony, Admiral Cebrowski, and then I thought perhaps maybe I would ask General Lord some questions. I have not adequately welcomed you to Washington, General Lord; I am glad you are here.

Admiral Cebrowski, I know your office has been a leader in looking at transformational space concepts. I understand your office is interested in exploring the notion of a new business model for space. In this new model, as I understand it, field commanders would drive demand and more frequent launches of small satellites,

individually less capable but responsive and potentially available in large numbers, would meet warfighter needs.

Could you summarize what you think the critical advantages of this approach are?

Admiral CEBROWSKI. Yes, sir. Thank you. The overall shift is from a supplier-centered approach to a demand-centered approach on this important capability. This is a common business phenomenon and a common business approach to move one towards excellence. So one adopts output models and looks and adopts the perspective of the customer.

I might add that this is meant to augment the larger space capability, because one of the objectives is to broaden the larger capabilities that we have. This is not about deserting one capability to pursue another because that would defeat the purpose of the approach.

It is also clear that in the current state of development one cannot really realistically be thinking about supplanting the capabilities of the larger space program. On the other hand, we could significantly reduce the burden that is being placed on the larger space systems from both an organizational point of view and a risk point of view. We could enhance persistence. We could increase adaptability. We could provide some measure of a reconstitution capability in this.

We could essentially, you might say, popularize the use of space, broadening the user base across the military and indeed in other agencies of government. Also, it would broaden the industrial base, and one of the targets here would be to achieve or focus on mass customization rather than the somewhat elusive dream of mass production.

Of course, there is a significant research and development (R&D) component in this that we should expect as well.

Senator ALLARD. What do you think are the keys to establishing this new business model?

Admiral CEBROWSKI. I think that an entry fee item right off the bat is to make our larger space business model healthy, pursuing the management initiatives that were talked about in the DSB study and that Secretary Teets is pursuing.

But next, getting to the model itself, there is a need to develop and implement standards and protocols for modular and scalable satellite capabilities specifically in the bus structure itself. This then becomes a unifying principle which both suppliers and users can point to, whether you are talking about launch vehicle suppliers, payload manufacturers, integrators, and indeed the users themselves. This is a vital step, I believe, that we take in doing this.

Of course, we must also develop a process wherein operational commanders can play a role very vigorously moving forward. You must expand the team, with multiple laboratories, multiple suppliers, and multiple combatant commanders playing roles in here.

We must also avoid the tendency to let this model simply graduate into the larger space model. I think, for example, about IBM, which spun off the PC and then spun it back into its larger institution, where it was essentially killed and the process had to be begun afresh. So there are some cautions in there.



I think that, working with STRATCOM and the Joint Forces Command (JFCOM), we have to develop an aggressive experimentation and prototyping plan for this. These items that I have pointed out are also essentially coincident with the plan by General Jumper for his warfighting space concept development.

Senator ALLARD. How important is standardization and spiral development in the development of these transformational concepts?

Admiral CEBROWSKI. It is actually critically important. A model for this is really the Internet itself. The Internet itself has a consortium called the World Wide Web Consortium (W3C), which is responsible for determining the standards and protocols for the Internet. Once we achieved these standards and protocols, the Internet was allowed to bloom, and the base of suppliers and users also blossomed. So this is a very critical step.

Senator ALLARD. Now, you in your testimony note that you do not supplant big space, but you also state that new, smaller elements of space capability emerge as a tool set providing virtually unlimited potential. It seems to me that this new model is very important, but not be able to meet all of the military requirements. Do you agree, and what kind of missions and payloads do you believe are most appropriate to smaller satellites?

Admiral CEBROWSKI. If one looks at the history, and I think I mentioned this in my testimony, the GPS is of course a massive and vital capability for our society. Others really grew out of an experimentation program which was based in small satellites. So one can see that there is growth, and since it has already been demonstrated in the area of navigation, it has already been demonstrated in the area of sensing, and to a somewhat lesser degree in communications. So it is not so much a matter of which area one can apply it. It can be applied in a great deal of areas, the ones I mentioned as well as environmental measurements. There is not the capability there to do some of the things that very large systems can do.

A small satellite now is thought of as for sensing purposes a very small aperture, and consequently it is limited. But the technology is at hand where you may be able to launch several of them, network them, and develop the phenomenon of the distributed aperture, which would significantly enhance the capability.

Senator ALLARD. I want to give General Lord, Admiral Ellis, and Secretary Teets an opportunity to talk a little bit about their views on whether the small satellite can or should fulfil any operational missions in the near term. Maybe, General Lord, you would like to respond?

General LORD. Thank you very much, Mr. Chairman. We agree with Admiral Cebrowski in terms of what the small satellites are capable of doing. We are engaged with him and his TacSat-1 demonstration program that will launch, hopefully here in the next several months, with an initial kind of put on communications capability.

I agree with what the Admiral said about it. In some things you can not probably replace larger missions that are done because the satellites are bigger with apertures, although we have demonstrated some other techniques. Our chief, General Jumper, and

the Secretary, as well as Dr. Teets, have pushed us to work hard in this area, and we have a plan to encourage the small satellite business to continue to grow along with TacSat-1 and TacSat-2 and then others after that. Along with our space test program in an area the chief has asked us to work on, joint warfighting space, which looks at just these kinds of capabilities—tactically responsive, small payloads, available to a theater commander in a certain circumstance given whatever his or her needs are depending on the situation.

So we see this as a very fruitful effort for the future.

Senator ALLARD. Admiral Ellis.

Admiral ELLIS. Yes, sir. We would certainly agree, as I speak for the combatant commanders. Given the sophistication and numbers of our ISR resources, we are forced to make prioritization decisions in time of crisis or conflict. We literally skew much of our orientation, our constellations, and even our air-breather platforms to focus on the area of conflict and provide legitimate and appropriate support of the RCCs.

In other words, they are forced to make choices and stop looking or monitoring or reduce our awareness in other parts of the globe. This capability has the possibility of reversing that paradigm, where you do not have to move all of the major long-dwell on orbit sensors. You are able to more quickly respond with an alert capability that you can launch into orbit in support of the regional combatant commanders.

So it offers us a great deal more potential in that regard, and we are excited about the concept and would like to see the developmental effort that Admiral Cebrowski has under way.

Senator ALLARD. Secretary Teets.

Dr. TEETS. Yes, I am very supportive of the entire ORL initiative, including what Admiral Cebrowski is doing. You recognize, too, that we have funded an ORL line and General Arnold out at Space and Missile Center is in the process of a competition right now. They have nine competitors involved in proposing on ORL capabilities. The objective here is to be able to launch 1,000 pounds into low Earth orbit for under \$10 million recurring costs and do it in a matter of days and hours, not months, weeks, or years.

At the same time, we have some people at the Air Force Research Laboratory and also at the National Reconnaissance Office that are looking at what kind of responsive 1,000-pound satellite missions can do to augment a conflict in a particular region. If we can get operationally responsive to the point where we could on a matter of a day or 2 call-up and be able to launch an ISR asset at a particular inclination to optimize on a particular theater of operations, Admiral Ellis would be able to provide ISR capability to that combatant commander in a matter of hours. That would be extremely helpful.

Senator ALLARD. Thank you.

Senator Nelson, we will have you finish off your time on the first round of questioning. I will then call on Senator Akaka, and I will come back to you, get Senator Akaka, and then we will have completed the second round.

Senator BILL NELSON. When I raced out to vote, I had talked about dual access, dual lines. General Lord, I did not get a chance to ask you to respond.

General LORD. Sir, I support that, having been down at the Cape to see both teams in action. Both the Atlas and the Delta teams, sitting on the launch console with the folks down there, I must tell you that those teams are coming together very well into a good operational team and a launch business. I agree with my colleagues here on the panel that I think it is important to have assured access with two providers, keep the competition, and we have 39 successful launches in a row since our broad area review and we want to continue that. Should we have an incident where we would lose one, we want to continue to have access with our vital payloads we need to get into space. So I think that is the best way to go operationally, is to have two opportunities.

Senator BILL NELSON. Mr. Secretary, you had said while I was gone that your general counsel is having a session with some of the Boeing executives about corporate ethics. Do you want to expand on that?

Dr. TEETS. Yes, sir, I would be happy to. Boeing has responded quite strongly to the violation of the Procurement Integrity Act that caused two of their companies to be suspended. They have done a lot of work internally. They have hired an outside consultant, Senator Rudman, as a matter of fact, to give them recommendations. They have listened to those recommendations and they have implemented corrective actions.

The comment I made was that we were in the process right now in our Air Force legal department of trying to construct with Boeing an administrative agreement that, once in place, would allow us to proceed with confidence that they are now a responsible contractor and that we can count on them as a contractor that we are willing to deal with and therefore lift the suspension. That is in work right at the present time.

Senator BILL NELSON. What corporate executive resignations have occurred as a result of this scenario?

Dr. TEETS. I would say that the widely publicized resignations of Mike Sears and Darlene Druyen are the ones that I am familiar with.

Senator BILL NELSON. They are who? What are their positions?

Dr. TEETS. Mike Sears is the former Chief Financial Officer (CFO) for Boeing, and Darlene Druyen was a former acquisition or contracting person for Boeing.

Senator BILL NELSON. So the highest corporate executive to resign was the CFO?

Dr. TEETS. Correct.

Senator BILL NELSON. The Chief Operating Officer (COO) and the Chief Executive Officer (CEO), has there been any discussion there of acceptance of responsibility?

Dr. TEETS. Forgive me here, but I should have mentioned the CEO of Boeing over the course of some time last fall did in fact resign and Boeing has a new CEO named Harry Stonecipher. Phil Condit resigned. Now, I am not trying to say that Phil Condit resigned as a result of this ethics violation that occurred, but he chose to leave the company some time last fall.

Senator BILL NELSON. When did the ethics violation come to the light of day as an acknowledged fact?

Dr. TEETS. It came to light about a year ago, and the Air Force decided to suspend Boeing in July of last year.

Senator BILL NELSON. July?

Senator ALLARD. Senator Nelson, permit me to interrupt you.

The names that you mentioned, did they resign as a result of the tanker issue or bidding of the EELV issue? I was under the assumption that they resigned because of the tanker issue.

Dr. TEETS. It is a complex kind of a picture. I am not sure I am qualified to tell you why they chose to resign. I know that there has been a lot of activity over this ethics violation that the Air Force suspended the two companies for. There have been other items in the news media as well.

So I cannot tell you why people resigned. I can tell you that the three that I mentioned, Phil Condit, Mike Sears, and Darlene Druyen, I do know that they all did resign at some point during the course of last year.

Senator ALLARD. Thank you.

Senator BILL NELSON. Sears and the lady that you mentioned, did they resign or did they get fired?

Dr. TEETS. I guess technically they were asked to leave.

Senator BILL NELSON. In the case of the CEO?

Dr. TEETS. I believe Phil Condit resigned.

Senator BILL NELSON. So do I take it from our discussion here that you will make the decision on the second line for the EELV prior to Boeing coming off of suspension?

Dr. TEETS. It is hard for me to predict the exact date when Boeing would come off of suspension. I do think that those two decisions can be uncoupled because I feel very confident that Boeing now, under the leadership of Harry Stonecipher, is taking this ethics violation very seriously. They recognize that a vitally important part of their business depends on their ability to properly deal with the United States Government and they are putting into place strong corrective actions. They are putting into place an ethics program which has substance and teeth to it, and I am confident that they will indeed emerge from this suspension as a healthy, responsible contractor.

Senator BILL NELSON. How much more is this going to cost the U.S. taxpayer as a result of the Boeing suspension?

Dr. TEETS. It is not possible for me to be able to estimate that, sir. I do not know the answer to that.

Senator BILL NELSON. There are going to be additional costs, correct?

Dr. TEETS. I think when the Boeing Company comes out from under suspension in many ways they will be a stronger company than they were before. Certainly the high ethical standards and a program of instituting standards of business practices within their organizations will serve them well. I think in an end result in really reduced costs as opposed to increased costs.

So it is real hard to estimate something like that.

Senator BILL NELSON. Well, what about just the contract price? Boeing underbid the other company. So had that been on the up

and up, by going with those eight or nine flights that you awarded to the other company how much is the differential there?

Dr. TEETS. The differential there I think is estimated somewhere just under \$200 million.

Senator BILL NELSON. Per flight?

Dr. TEETS. No, no. Total, the total number of launches that were re-awarded to Atlas family from the Delta family.

Senator BILL NELSON. How about the cost in lost time?

Dr. TEETS. Again, there has been some time lost. It is awfully hard to estimate those costs. I do not have a good handle on that, to be candid.

Senator BILL NELSON. Has national security been compromised as a result of this fiasco?

Dr. TEETS. Not to my knowledge. I do not think that national security has been compromised.

Senator BILL NELSON. How about in the sense of any delay of the flights?

Dr. TEETS. I think the flights are largely driven by the readiness of the satellites to fly. I do not think that we are seeing delays in launch due to the suspension of Boeing.

Senator BILL NELSON. Would you provide for the record an overall analysis of what the additional cost to the U.S. Government will be as a result of the Boeing suspension?

Dr. TEETS. I will indeed.

[The information referred to follows:]

Currently the Government's total cost as a result of the Boeing Procurement Integrity Act violation is estimated at \$257 million (fiscal year 2004–2009.)

Of the total reported increase in EELV program costs, \$8,640 million (total year money) through 2020, or approximately 63 percent is attributable to the downturn in the commercial market.

Senator BILL NELSON. So with the way we are rocking along now with the contracts given to Lockheed, can you tell this committee that we will have assured access to space?

Dr. TEETS. I believe that the way we are proceeding maximizes the probability of having assured access to space. Now, it is hard to guarantee assured access to space with the kind of fragile infrastructure that we have today. Two incidents, one on an Atlas and one on a Delta, would leave us hard-pressed to launch National Security Spacecraft any time soon.

I will say that with two strong launch vehicle families, I think we maximize the probability of being able to have access to space when we need it.

Senator BILL NELSON. I have a number of other questions, but I want to give our colleague from Hawaii a chance.

Senator ALLARD. I need to check with the time here because my watch says he has used 10 minutes. He has used 10 minutes. So now when we get around to the second round I intended for Senator Nelson to be able to use that time which he did not complete on the first round of questioning. How much time is left from that?

Senator BILL NELSON. It is just going to be you and me, so it does not make any difference.

Senator ALLARD. I want to be fair with everybody.

Senator BILL NELSON. I want to give him a chance.

Senator ALLARD. He will get a chance.

So he has 6 minutes on the second round. Okay, very good.

Senator Akaka, you have 10 minutes.

Senator AKAKA. Thank you very much, Mr. Chairman. I want to thank you for having this hearing on NSS programs, as well as on the defense authorization request.

I would like to touch on the National Space Policy and direct my question to Secretary Teets. I believe that we are currently operating under the National Space Policy issued under the Clinton administration in 1996. Space weaponization is not mentioned anywhere in this document. Yet the Missile Defense Agency (MDA) has requested \$75.5 million in fiscal year 2005 for space weapons-related programs.

If the current administration plans to develop space weapons and take space policy in a drastically new direction, as it appears to be doing with that request of \$75.5 million, why has a new National Space Policy not been issued on that?

Dr. TEETS. Senator, I believe that we are proceeding in full compliance with the National Space Policy. I think that one of the dictums that we have is to be certain that we have freedom to operate in space, and we have implemented an aggressive space control activity which starts out with trying to understand better what these 10,000 objects that are orbiting our Earth really are made up of. We have a catalogue of those objects today, but we cannot tell you much about those objects. We want to learn more about space situational awareness.

We also want to make certain that we are able to defend our own space assets so that we can in fact be able to continue to enjoy the asymmetric advantage that we currently have by operating our space systems.

Then, third, we are in fact looking at some offensive counter-space capability and we have emphasized in that reversible effects. Those offensive space capabilities today are ground-based. So I would just simply say that we are, I do believe, operating in full compliance with the National Space Policy.

Senator AKAKA. My question was why a new policy has not been issued.

I want to direct the next question to Admiral Ellis, and it is something that is close to home. Starting in September, when the Bush administration plans to deploy a national defense against long-range missile attack, you will be the person responsible for protecting all 50 States from such an attack. I understand that because of the radar coverage limitations with the current system, in order to protect the State of Hawaii from an attack from North Korea, a Navy ship will be required to be stationed off the North Korean coast. This ship will provide radar coverage for the system.

The question then arises to whether the Navy is committed to placing a ship on station off the coast of North Korea to provide the necessary radar coverage. Secretary of the Navy Gordon England reportedly stated this week that the Navy would provide virtually continuous deployment of a ship off North Korea. What does "virtually continuous" mean? Will a Navy ship be on station 24 hours a day, 7 days a week, to protect Hawaii from a long-range missile attack starting in September?

Admiral ELLIS. As we discussed, Senator Akaka, during our hearing together on March 11, the Navy contribution to the missile defense capability is just as you describe. It is a radar tracking capability that will provide initial cuing in addition to our overhead sensors and the like. They complement the other ground-based radars, which are more optimally suited to defend other elements of the entire defended area, which I can assure you includes the great State of Hawaii.

The Navy has committed to identifying ships and to upgrading their radar configuration so as to provide that on-station capability of which the Secretary spoke, and that commitment is real. There are milestones that are being met to provide the capability that he described.

Senator AKAKA. Mr. Chairman, I have another question for Secretary Teets. I have a statement that I would like to have placed in the record.

Senator ALLARD. We would be glad to make that a part of the record, Senator Akaka.

[The prepared statement of Senator Akaka follows:]

PREPARED STATEMENT BY SENATOR DANIEL K. AKAKA

Mr. Chairman, thank you for holding today's hearing.

Space-based technology has become integral to this country's national security. The first Gulf War was nicknamed the "Space War" because of the important role that guidance, reconnaissance, and communications satellites played in the U.S. victory. That war marked a watershed moment in the military's perception of, and reliance on, space. Today, we are able to call upon space assets to improve the strength and accuracy of military campaigns. Because of this, American soldiers are safer.

While space is commonly used to aid military operations, it has been kept free of weapons and combat. It is not the practice of the United States to attack other assets in space nor to attack land targets from space.

However, the fiscal year 2005 budget request for the Missile Defense Agency (MDA) indicates that the administration wishes to change this policy. MDA has requested \$75.5 million for space weapons-related programs.

Of that, \$65 million is earmarked for the Near Field Infrared Experiment (N-FIRE). While the main purpose of this program is described as information gathering, there is concern that the N-FIRE could pave the way to space weapons development.

N-FIRE involves a kill vehicle-like projectile that is fired out of a satellite. The projectile is supposed to maneuver close to a missile for inspection. This is a feat much more difficult than actually hitting the missile. Essentially, if MDA successfully develops the N-FIRE satellite, it would be much closer to developing a space-based weapon.

I am troubled by this slippery path on which we are embarking. Space weaponization should be subjected to a public debate, not slipped in through the backdoor. This is a decision that should be made by the country, not just the administration.

The United States has avoided space weaponization for national security reasons. We have more assets at risk in space than any other nation. Our defense would be crippled if our communications and intelligence satellites were attacked. A decision to introduce weapons to space would be precedent-setting and could trigger a space arms race. In the long run, U.S. national security would be jeopardized, not enhanced, by a move to weaponize space.

The administration's budget proposal this year cut funding to many key homeland security and domestic programs. How can we afford to invest over \$75 million in space weaponization when the administration proposes to cut programs that will produce clear, immediate benefits to the United States?

Space-based technology plays a critical role in the U.S. military, and I want to ensure that the space programs that aid U.S. national security are well developed and fully funded.

I thank our witnesses for being here today, and I look forward to hearing from you on this important subject.

Senator AKAKA. Thank you.

Secretary Teets, the Near-Field Infrared Experiment (N-FIRE), which is scheduled for launch in fiscal year 2006, will develop a satellite that can deploy a kill vehicle towards a missile. It is my understanding that this portion of the program would enable MDA to develop technology that can be applied to space-based weapons.

My question to you is: Is the N-FIRE program intended to pursue space weapon capabilities? If not, what safeguards are being placed on the N-FIRE program to stop it from turning into such a program?

Dr. TEETS. I think it is true that the kind of capability that N-FIRE will have could with a different concept of operations (CONOP) be used as a space-based weapon capability. There is no such CONOP that I am aware of that is under consideration at this point in time, and this N-FIRE sensor will indeed be a sensor that looks at infrared plume real close up and personal.

Senator AKAKA. Secretary Teets, according to the MDA the N-FIRE is needed because the data it gathers can be used to make missile defense interceptors better at target discrimination.

Dr. TEETS. Right.

Senator AKAKA. However, it is my understanding that the observation capabilities N-FIRE will offer can be achieved by a number of other less costly and complex methods, such as air or ground-based sensors. Can you explain what observation capabilities N-FIRE will give us that cannot be achieved by other means?

Dr. TEETS. I sit on a board and meet quarterly with General Kadish and I have a general feeling for what they are doing, but I am not real close to this program.

But as I understand it, the objective of N-FIREs is to get an infrared sensor very close to the plume of an accelerating reentry vehicle, and understand then and characterize the infrared characteristics of that target in the closing end game. I do not know how else you can do that. If you are going to get close to it you are not going to do it with an airplane, I do not think. But again, it is not a subject that I really have studied in depth, sir.

Senator AKAKA. Admiral Ellis, I would like to ask you to provide something for the record.

Admiral ELLIS. Certainly, sir.

Senator AKAKA. Could you provide the committee with a description of the milestones you mentioned for a 24-7 deployment of a naval radar to protect Hawaii?

Admiral ELLIS. I would be delighted to describe for you the naval contribution to the missile defense system in its entirety and I look forward to doing that, sir.

[The information referred to follows:]

The Navy is poised to contribute significantly in fielding initial sea based missile defense capabilities to meet the near term ballistic missile threat to our homeland, our deployed forces, and our friends and allies. They are working closely under the authority of the Missile Defense Agency (MDA) to deliver this much-needed capability to the Nation's combatant commanders.

As part of the President's Directive to accelerate the fielding of a Ballistic Missile Defense (BMD) Initial Defensive Operations (IDO) capability in 2004, the Navy is providing a capability in select *Arleigh Burke*-class destroyers (DDGs) to conduct Long Range Surveillance and Tracking (LRS&T) of ballistic missiles. These ships will provide cueing and tracking data to support ground-based elements of our layered defense system. As with other military missions, the combatant commander



will be responsible for assessing indications and warning and other intelligence in his evaluation of risk, and his subsequent deployment of assets to effect a readiness posture. National policy and operational directives will determine whether coverage is continuous or virtually continuous.

Presently, MDA plans to equip 15 DDGs and 3 cruisers (CGs) with BMD capability, both for LRS&T and firing of the SM-3. SM-3 procurement numbers will be based on input from the combatant commanders and determined by the Program Objective Memorandum process.

Since November 2002, the Aegis BMD Program Office has successfully completed two of three intercepts with the Standard Missile 3 (SM-3 Block 0) from the U.S.S. *Lake Erie* and is on track to support emergency deployment of a sea-based mid-course engagement capability by spring 2005.

The Navy is also evaluating the benefits associated with developing a Sea-based Terminal Missile Defense capability. A viable regional and terminal sea based ballistic missile defense system is important to ensure the safety of U.S. forces and the flow of U.S. forces through foreign ports and airfields when required.

Senator AKAKA. Thank you very much, Mr. Chairman. My time has expired. I will submit the other questions for the record.

Senator ALLARD. Thank you, Senator Akaka.

Senator Nelson for 6 minutes.

Senator BILL NELSON. Yesterday, Admiral Ellis, we had talked in the full committee about the Minuteman III. The Nuclear Posture Review (NPR) and the Moscow Treaty achieved the bulk of the reductions in the deployed nuclear warheads by retiring the Peacekeeper and taking the Multiple Independently-Targetable Reentry Vehicles (MIRVs), de-MIRVing the Minuteman IIIs, so that each Minuteman III has one instead of multiple warheads.

There was a recent press report that suggested that the decision to have one warhead on each of the 500 Minuteman IIIs was being reconsidered. Is there any truth to that press report?

Admiral ELLIS. I am aware of no reconsideration of that, sir, and I believe that the modernization program of which we spoke yesterday is still on track as you and I understand it.

Senator BILL NELSON. Is there any plan to retain MIRVed Minuteman IIIs?

Admiral ELLIS. I am not aware of any program at all, sir, in that construct. Now, as with all posture and policy reviews, someone may have hypothesized as we look at alternative structures for the future and what combination of reduced vehicle numbers could allow us to do that. I can assure you that there is nothing in the program of record that alters the information that either you or I have been given about the way ahead for the program with regard to Minuteman III.

Senator BILL NELSON. Following up also our conversation of yesterday on missile defense, you are the combatant commander that has the responsibility for its success and you accept the responsibility if it fails against a real enemy missile; is that correct?

Admiral ELLIS. Yes, sir, I have the overarching role for integrating and coordinating that and making those capabilities available to the RCCs, who of course, if it were ever required, would be the ones to employ it.

Senator BILL NELSON. Would you like to see the national missile defense system operationally tested in a combat-like way as soon as possible?

Admiral ELLIS. My belief is that that effort is under way, sir. Over an extended period of time, as we get through the developmental test phase and we put these capabilities into the oper-

ational environment where they would be called upon to serve, and even as we continue to evolve follow-on phases of that spiral development, we will take advantage of those nascent capabilities that are immediately available as we work towards, as Mr. Christie and General Kadish testified on March 11, an ultimate test program that more completely evaluates all dimensions of that system.

Senator BILL NELSON. The key criteria for operational testing are independence and combat realism. Do you think that this system being deployed is combat-realistic?

Admiral ELLIS. Well, there are obviously elements that cannot, and hopefully never will be tested from a full operational capability (FOC), the launch of threat missiles and the like from potential adversaries. I do believe that the elemental testing that is under way will characterize the dynamics and the environment in which this system is intended to operate. They will refine and identify the sensor capabilities. We will assess the command and control linkage, command, and control processes and procedures that are an important part of all of that. That will then be brought together in a comprehensive way, with Mr. Christie's Operational Test and Evaluation (OT&E) team, the Joint Theater Air and Missile Defense Organization (JTAMDO) team, the MDA, and my own personnel. I believe that we will get to those operational elements as we can define them over time as this system evolves towards future capabilities.

Senator BILL NELSON. Help me understand. Is your answer yes or no that you would like to see this system operationally tested in a combat-like way as soon as possible?

Admiral ELLIS. Ultimately, I think that is where we are going.

Senator BILL NELSON. When would that in your mind be operationally tested?

Admiral ELLIS. That is going to be contingent on the assessments that we make in the early phases on what successes we have and what technical challenges are delivered. As we quantify the capabilities that will be brought on line through 2004, 2006, 2008, and beyond, we will be better able to characterize the evolving configuration and then better assess its operational capabilities. But clearly that is not going to be achieved in the near term, nor was that the expectation.

Senator BILL NELSON. As the combatant commander, your answer then is yes, you want to see it operationally tested; you just think it is going to be down the line before it is?

Admiral ELLIS. Yes, sir, and I think that is the intent of the team all along, to bring as much operational character to this as can be brought, when it is appropriate, and when the system maturity permits it.

Senator BILL NELSON. Now, current law provides for independent testing to make sure they are suitable and effective. Do you support the intent of this law as it applies to this national missile defense system?

Admiral ELLIS. My view, sir, having had a background in testing many years ago, is that it is appropriate that we examine the context and the scale and the dimensions of programs rather than automatically applying a system definition for OT&E that might more appropriately be applied to smaller-scale, less complex envi-

ronments. I think we need to have the flexibility to do the spiral development that is under way, to do developmental testing with operational inputs as this process evolves, and we ought to be involved in assuring that we deliver those capabilities and those honest assessments in the most realistic and rigorous way possible.

Senator BILL NELSON. So you support the intent of this law that provides for independent testing?

Admiral ELLIS. I think we are getting to the intent of that law by involving the OT&E people in the process. Indeed, that is the intent of all of this. My point is that, with large-scale systems, the complexity of the test, the expense of testing and the like, no longer allow us perhaps the luxury that we once had of sequential developmental and operational testing. That technology and simulation now allow us, for the first time, to bring these elements together in a concurrent manner that more efficiently uses the resources and arguably more quickly delivers that capability that we all seek.

Senator ALLARD. Thank you, Senator Nelson.

Secretary Teets, in your view what should the government approach to launches be and what should the launch industry look like 10 years from now?

Dr. TEETS. I think that in 10 years I would like to see us at least well along the way toward a truly next generation launch capability. Now, I recognize that we have two important thrusts going right now. One is to maintain a healthy family of EELVs. The other is to bring on line operationally responsive, small-sized launch vehicles that can be launched very economically and rapidly.

The third leg in this is for us to start the move toward a next generation launch system. I must say that I have been around the launch business now for over 40 years, and when I first started in the launch business 40 years ago we were fundamentally getting things into orbit about the same way we are today. That is kind of a sad thing in a way. It is a controlled explosion all the way up. It is certainly not a 99 percent kind of reliability system.

I have a strong belief that ultimately we need to find essentially the jet engine of the rocket business. Aviation celebrated its 100th anniversary of powered flight here last year, and from the time the Wright Brothers flew until some time in the 1940s aviation evolved along the way. Then all of a sudden there was a breakthrough called the jet engine, and it revolutionized the way airplanes could be used and air transportation could be put into effect.

I think we need something like that in the rocket business. We have evolved expendable launch vehicles to the point where our EELVs today are the best expendable launch vehicles we have ever had, but they are still not nearly good enough. We are not going to have reliable, dependable, rapid access of significant cargo to space until we get that next generation of technology under our belt.

You may be familiar with the fact that when I was at Lockheed Martin I was very much involved with the X-33 program, which was a single stage to orbit vehicle. It was a partnership between Lockheed Martin and NASA. We worked real hard at it. We invested a lot of company money and NASA invested a significant sum of their resources, too. When we finally gave up on X-33,

which was going to be a single stage to orbit kind of a vehicle, I think we were probably two inventions away from success.

Ten years from now, I would hope that we would be at a point where we could see a future that has a truly, fully reusable space launch capability. I think we need to get there and we need important research and development funds to do it.

Senator BILL NELSON. As a technical follow-up, until we get to that day of nirvana with that next generation, in the mean time Lockheed is relying on the Russian rocket.

Dr. TEETS. Engine.

Senator BILL NELSON. The engine. Now, is that in the security interest of our country, relying on that being manufactured over there? There was originally a plan to put a manufacturing facility here.

Dr. TEETS. Yes, sir, and there still is a plan to do that. That technology is being imported even as we speak, and Lockheed Martin is engaged with Pratt and Whitney in a look at how could we co-produce that RD-180 engine here in the United States. It is not clear that it is going to be economically feasible to do so, although it may well be.

So far, the strategy that Lockheed Martin has employed in order to give us assured access to space is to inventory Russian-built rocket engines. That is not an enduring strategy, and as a result they are continuing to press forward with their plans to have a capability to co-produce here in the United States.

Senator ALLARD. Now I would like to hear from Admiral Ellis, General Lord, and Admiral Cebrowski on your thoughts about the future of our launch industry.

Admiral ELLIS. As with many around this table, I spent a lifetime with complete fascination with everything that flies and soars. Along with many of you, I grew up staring at grainy black and white TV images of early launch successes and far too many early launch failures. We all remember those days, and they inspired us, in my case, to an aerospace engineering background.

While I certainly do not share Senator Nelson's experience, I do have some rocket science in my own background. I echo Mr. Teets's views that that is the goal. We have spent a lot of time over the last year in the Partnership Council, which brings together NASA and me and General Lord and Ron Sega, under the leadership of Secretary Teets, to assess what is in the realm of the possible. We examine how do we get there and how do we identify, not just the wholesale leaps, but the little incremental technological improvements that Mr. Teets spoke of that might enable that leap when the time is right.

Clearly, it is that kind of routine access that we must strive for. But as you and Senator Nelson rightly pointed out, we also have to have a plan in the meantime. We have to have a near-term addressal of the national security challenges. While I share the idealism of where we want to go, I also share the realism and the challenges that we face today and tomorrow in support of our operational forces. A lot of those options that are being pursued, that you heard described by General Lord and Admiral Cebrowski, are more realistic near-term alternatives, but we cannot give up on that dream and we need to pursue the technology appropriately

that might enable us to get there either in the mid- or far-term, as the case may be.

We certainly understand the need to continue appropriately addressing the technological miracles or achievements, but we also have to have near-term solutions as well.

Senator ALLARD. General Lord, do you have anything you want to add?

General LORD. Yes, sir. If you look back 20, 25 years ago, there were two major suppliers of the launch business, us and the former Soviets. You look now, there are probably 7 or 8 countries that can do it with 9 or 10 different launch vehicles. The business model just did not hold up, not only for the United States but for others as well.

To take it to the future, I think it is in our national security interest to push hard, to get to aircraft-like operations in space, to do the kind of things we need to help achieve, as Admiral Cebrowski says, the full advantage of a different kind of business model in the future. I think we have to push hard. I think it is something we need to invest in as a nation, I think as a space-faring nation.

The 100th anniversary of powered flight was mentioned. The Air Force celebrates 50 years in space in August this year. I think it is important for us to continue to push the envelope and be able to do that.

Senator ALLARD. Admiral Cebrowski.

Admiral CEBROWSKI. I think as we look at major advances in one area of the technology, such as in propulsion, we should be aware too that there are likely to be other major advances going on simultaneously which impact us. So the questions of what you lift and how you lift it seem to intersect. For example, we need to get a handle on what happens when we are able to reach for nanostructures for space vehicles, payloads, and what that impact has on our capability, which could sharply accelerate the utility of smaller vehicles.

I think we also have to look at frequency of launch and the impact that has on the competitive environment. The more frequently we launch, essentially the higher the transaction rate is amongst all the various elements in the program, so the learning rate is up then. With only a modest number of launches, learning is stagnant. So we should not be surprised that we have gone so long with only modest advances in lift.

Senator ALLARD. Let me wrap this up. I commend you, Secretary Teets, for initiating the ORL effort. I believe that at least two competitors in the analysis of alternatives for responsive launch could have viable small, low-cost launch vehicles within a couple years. Yet the ORL program appears to be in a very much longer time line, potentially 7 or 8 years in development.

What drives the schedule of the ORL program?

Dr. TEETS. The schedule is fundamentally driven by resource allocation, sir. I would just say that one of the things that we have recently done is, when Space and Missile Center source selected these nine contractors to be involved with ORL we have asked them to propose to us how rapidly they could indeed put a test vehicle into effect.

We are hoping to accelerate our current schedule. Our current schedule is to have two of these concepts have a test launch in 2007. We would like very much to accelerate that if we possibly can. So to that end we are asking our contractors to put some effort on how could you accelerate it and what would it cost in terms of resources in order to accelerate a capability from 2007 into the nearer term.

Senator ALLARD. Would this be characterized as a spiral development effort?

Dr. TEETS. Yes, it would.

Senator ALLARD. I believe my time has expired. Go ahead, Senator Nelson.

Senator BILL NELSON. Thank you.

Mr. Secretary and General Lord, what is the current status of SBIRS-High and how late is the Highly Elliptical Orbit (HEO)-1?

Dr. TEETS. I am pleased to give you a summary of where we are with SBIRS-High. As you probably recall, 2 years ago we had a Nunn-McCurdy breach on the SBIRS-High program and that breach resulted in quite a significant restructuring of the program. It was certified 2 years ago now by Secretary Aldridge and we proceeded to put additional resources in it and restructure the contract, change many of the terms and conditions of the contract and content to the program. Over the course of the last 2 years, we have made significant progress.

I will say recently—in the last year or thereabouts—we have encountered some adversity in the area of electromagnetic interference that is put out by the sensor that is destined for the HEO ride. We have been working diligently to solve this electromagnetic interference problem. I meet very regularly with the presidents of Lockheed Martin and Northrop Grumman and we have put a lot of resources and a lot of technical talent and we have made good headway.

At the present time, I would tell you that we are on course to be able to deliver this HEO sensor to the host vehicle by the end of July of this year. That is a year and a half late and a year and a half late creates problems in the program. I will say the fact that we have focused intensive efforts on solving this electromagnetic interference problem has caused us to move work out of the work that would normally have been applied to the geostationary vehicle.

So let me tell you that this is a fluid situation right now. We are in the process right now of reevaluating what our launch date for the geostationary vehicle will be. I cannot tell you the exact new launch date. I can tell you that I anticipate having another cost problem on the SBIRS-High program and I expect that we are going to have to take some steps to see if we can apply additional fiscal year 2005 funding in order to handle the impact to this geostationary vehicle.

Senator BILL NELSON. So there is a separate technical and schedule problem with the geosatellites?

Dr. TEETS. There is a schedule problem. We are not suffering a separate technical problem on the geo birds. The fact is that we focus so much attention on the HEO birds that we have fallen behind in the development of the geo, the first geosatellite, and it is

a schedule problem. That schedule problem comes with a cost problem, unfortunately, sir.

Senator BILL NELSON. Did you want to add anything, General Lord?

General LORD. No, sir, other than to say that Dr. Teets, myself, Admiral Ellis, General Arnold, and the company presidents meet almost monthly on the program. Of all the programs I have experienced in my history in this business, this is the one that is getting the most scrutiny, I will guarantee you.

Senator BILL NELSON. Admiral Ellis, how important is SBIRS-High to your mission?

Admiral ELLIS. It is absolutely essential. Senator, it is not merely a follow-on to the DSP Constellation, although it certainly will fill that and do a great deal else in addition. It is a critical increase in our ISR capabilities, our technical intelligence capabilities, and many of the other things that you know well that lie in the classified realm. So it is absolutely essential that the capabilities that are promised by the SBIRS program continue to mature.

Senator BILL NELSON. General Lord, in your written statement you refer to space-based infrared capabilities, but you do not mention SBIRS-High. Should we be reading something into that?

General LORD. No, sir. As we talk about SBIRS-High, remember, we have a space part and we also have a ground part, and we have already done Increment One, which is the beginning of the ground part. As a matter of fact, during the war and OIF the missile warning processing was done by DSP through the Missile Warning Center up at Buckley. Our Increment One capability with what we have done in the SBIRS program with the ground system really was very useful in providing that kind of warning to the theater.

Essentially what we have done with the DSP is wrung just about every bit of operational capability we can out of that set of sensors, and we are looking forward to moving in a way to get this advanced capability to provide Admiral Ellis and the other combatant commanders with this improved capability.

Senator BILL NELSON. Mr. Secretary, on the AEHF satellite, the decision to buy the fourth is going to have to be made by October; is that right?

Dr. TEETS. Yes, sir.

Senator BILL NELSON. Well, as I understand the TSAT program, it is going to have various technologies and they may not be sufficiently mature to include in a TSAT in the third quarter of 2006, such as Multi-Access Laser Com. It is not going to be mature until 2008. Can you tell the committee how you can forgo the fourth AEHF and rely on the first TSAT as a substitute?

Dr. TEETS. Yes, sir. We face that decision in the October timeframe, as you mentioned. This is going to be a very important and significant decision to make, whether or not to buy a fourth AEHF satellite. What we are doing at the present time is significant technology risk reduction activity on the TSAT program, and we are pointing very much toward this October decision that you mention and it will be a balancing of risk in order to make that decision.

We have put into place this TSAT program in a way that we had hoped would allow us to make a decision to not buy the fourth AEHF vehicle, but that decision has not been made. The decision

will come in the October-November timeframe, and we will evaluate very carefully the progress that we have made on the TSAT program.

Now, when you talk about the Multi-Head Laser Head, that is a capability that we do not require for the first spiral of TSAT vehicles. That is a development that we see as being very important to expand the capability for receiving information from space-based radar or other ISR kinds of sensors. It is not necessary on the first TSAT vehicle.

What we want on the first TSAT vehicle is a vehicle that has significantly better capability than AEHF and have it be a vehicle that we are highly confident we can deliver to a schedule. That decision, as you mentioned, that takes place in the October-November timeframe will weigh the risk of a late delivery of TSAT against the advisability of acquiring the AEHF as a safety stopgap.

Senator BILL NELSON. Let us talk about timing. A fourth AEHF would launch in 2010. The first TSAT is not going to be ready until 2012, and that is assuming it is on time. So what confidence do you have that secure communications will be maintained?

Dr. TEETS. Well, these AEHF satellites that you are referring to have 10-year lifetimes.

Senator BILL NELSON. So you would not have a break there if you cancelled a fourth AEHF?

Dr. TEETS. Well, that is the exact trade that we want to make in the October-November timeframe, because we will not have a break in coverage if we can deliver the TSAT on the schedule that we are currently on. On the other hand, what I am trying to tell you is that we are taking this decision seriously, because what we cannot do is leave our warfighting community without the capability of secure communications.

Senator BILL NELSON. That is right. You know the history of rushed satellite programs.

Dr. TEETS. Yes, sir.

Senator BILL NELSON. So that begs the question, why not buy the fourth AEHF?

Admiral Ellis, can you live with this approach?

Admiral ELLIS. Well, sir, I do not know. We have not made the decision yet, as Mr. Teets noted, sir. So to define the approach in the sense that you did, obviously we are not there yet. But our role in STRATCOM is to represent the needs of the warfighter in what Admiral Cebrowski had a big hand in, and that is creation of these network-centric forces that are increasingly reliant on these capabilities. A part of that is a pretty clear-eyed view of, if plan A does not execute as scheduled, what is plan B? Those are important considerations as we chair the Senior Warfighters Forum and other venues that address these very real and important concerns.

So I cannot live without the enhancements and improvements in the bandwidth that are needed to support the systems that we are increasingly putting in the field. The short answer to that, of course, is no.

The issues that Mr. Teets addressed on the technical maturity of TSAT vis-a-vis the AEHF have to be very carefully played out in that fall timeframe, as he is committed to doing.



Senator BILL NELSON. Do you not love being head of Space Command? [Laughter.]

Admiral ELLIS. It is a dream job, sir, and I mean that. It is a dream job.

Senator ALLARD. I want to follow up a little bit on the GPS-3, Secretary Teets. This has been around for a long time. It is a powerful satellite and the idea is to blast through. There has been some suggestion that perhaps modifications could be done in the ground stations, the user equipment, as well as the networking. That may not be necessary.

Has the Air Force recently done any evaluation of or a comprehensive look at the full range of technical alternatives to defeat the GPS jamming threats?

Dr. TEETS. Yes, sir, we have. I am pleased to say that I think we now have a quite well-synchronized programmatic plan that will take us from today's GPS-2R configuration, starting next year with the launch of GPS-2R modified, that will put up our first M code GPS satellites, which will have additional jam resistance. When those play out, it will lead logically and progressively into our GPS-2F configuration, which will add even more jam resistance to it. Then ultimately it will synchronize into our GPS-3, and GPS-3 will give us significant anti-jam kind of capability.

Meanwhile, the ground equipment, the receivers, and the necessary ground equipment will be synchronized with that evolutionary flow. So I think we now have a GPS program that makes excellent sense.

Admiral ELLIS. There is also an element of tactics, techniques, and procedures that play into this, as we were able to discern in our assessments as we approached the conflict last year. We have found that there are very successful techniques with regard to antenna placement and tactical employment of our existing systems that can further mitigate this.

So we are working this in concert. It is not just the technological answer that we are pursuing, though. As Mr. Teets fairly describes, that will get better and better as we move forward with the maturation of the GPS Constellation. We are also working the real-time employment techniques that can further ensure success for our warfighters.

Senator ALLARD. Thank you.

Admiral Cebrowski, we have not forgotten you. I understand that your office is sponsoring a number of TacSat payloads and launches that are designed to demonstrate the viability of low-cost operationally useful payloads and space launch. How would you describe the value of the TacSats? What role will they play in transformational space?

Admiral CEBROWSKI. The TacSat-1 is an experiment. It is a very broad experiment in that it includes many elements, but it is focused on what you might consider the key or what we consider the key elements of the new business model. While it is experimental, it is not a technical experiment. It is an operational experiment that has some technical components to it.

So we are working closely with the Pacific Command (PACOM) to apply a particular capability against an operational problem that the joint commander has in the Pacific. When we do this, the meth-

odology that we have selected is to try to move space capabilities onto the time lines of contingency planning for a major contingency, so that we could launch, create a payload, integrate it into a rocket, and launch it within about a year with a cost of about \$15 million.

We are on the outside margins of those numbers, quite honestly, but not so far that I feel as though the basic concept is at risk. We want to be able to have the payload tasked and respond via the Secret Internet Protocol Router Network (SIPRNET), the Internet protocols which we use for the general command and control system for the forces at large. We also want to have a payload which is capable of talking to aircraft, to UAVs, ships at sea, forces on the ground, and be able to do so directly, so that we do not require very large installations or incur significant infrastructure costs.

So we are using essentially existing network structures to be able to do that. Now, I think one of the most exciting things about this experiment has been the teamwork that has been generated between the Naval Research Laboratory, the Air Force Research Laboratory, Air Force Space in general, the NRO, and a whole host of commercial partners, not the least of which is Elon Musk's space effort, and he is our launch provider. We are going on his maiden voyage and taking advantage of that.

We have all of these things in play simultaneously in this. The objective is that we would catalyze activity, and I believe we have been successful in doing that, and that would bring operationally responsive space into the present so that it would not be just something for the end of the decade. The larger system has responded to that.

TacSat-2, which is a somewhat more involved payload, but also performs in the sensor realm, will probably launch much later in this year. We need to get on to increase the frequency, the cycle rate, if you will. In order to do that, a critically important step is to focus on standardized bus interfaces that I had mentioned before. This will allow for this very high cycle rate that we are looking for.

This also addresses to a certain extent the issue of access that was talked about earlier, increasing the frequency of launches, and moves us to the point where we can be talking about essentially high-speed designer capabilities at low cost, able to operate nearly autonomously, and responding to the market demands.

Senator ALLARD. Secretary Teets, I note that TacSat-1 and -2 are fully funded and that senior Air Force staff have shown us a plan for a series of TacSats. The question is, are future TacSats funded in the Air Force Future Years Defense Program (FYDP)?

Dr. TEETS. Senator Allard, I am going to need to take that for the record. I do know that TacSat-2 is funded. I do not know that TacSat-3, -4, and -5 are funded separately. I know the Air Force Research Laboratory has a plan to continue the TacSat series, but I cannot tell you if they are identified as separate line items or not. I would be happy to take it for the record, though.

[The information referred to follows:]

TacSat-1 and TacSat-2 are fully funded and, based on their anticipated success, we are pursuing future TacSat opportunities. We believe that this is a good strategy for future exploration of rapid warfighter capabilities. Currently there is no funding

in our budget beyond TacSat-2. We are working to secure funding for these future TacSats in our FYDP.

Senator ALLARD. Okay. Let me move on to the other question I had for you. Do you believe that the model using lower cost, smaller satellites to meet space requirements potentially may have broader applications in supplementing and reconstituting current capabilities?

Dr. TEETS. I do, particularly when it comes to the supplemental part. I think that there are multiple applications for small satellites to be able to augment existing capabilities to be able to operate in conjunction with existing capabilities, and to increase capabilities for a certain theater of operations that exists at a certain latitude on the face of the Earth. With an operationally responsive launch capability, you can optimize orbital characteristics for a specific theater and that can give some very important operational benefits.

Senator ALLARD. Does operationally responsive space (ORS) imply a different approach to requirements definition for space?

Dr. TEETS. Well, it does in the context that we will impose requirements that will dictate that both the ORL vehicle and the satellites that they will launch will need to be able to be checked out and processed and launched in a matter of hours and days, not weeks, months, and longer.

Senator ALLARD. Admiral Ellis, do you have any comments on the requirements aspect of this question?

Admiral ELLIS. I certainly do, sir. As Mr. Teets said, obviously there is going to have to be an ability to bring these satellites from wherever we store them and get them ready to launch to match the aggressive time lines that we have been discussing. But I do think it is fair to say that we are also going to have to address the requirements piece more realistically. In other words, one of the key advantages and potential for this flexibility and this replenishment rate, as Admiral Cebrowski describes it, is that we do not have to design for all cases. We can focus on the near-term requirement. We can, in modular fashion, put together a payload that best serves the very specific needs of the commander.

We are going to need a process that very quickly identifies the key requirements and makes the appropriate tradeoffs to get the kind of responsiveness we need. Also, it should identify those elements that can be drawn from commercial sources and the like, as is an important part of the TacSat program, so that we do not overstate requirements. We need to get to the element that is really essential and of most benefit to the warfighter, and we get there quickly and efficiently.

Senator ALLARD. My time has expired.

Senator Nelson.

Senator BILL NELSON. Let us talk about SBR. It should deliver, according to Pentagon descriptions, persistent radar coverage of most of the globe. What does "persistent" mean? Does that mean continuous? If not, what is the difference? Anybody?

Dr. TEETS. I would be glad to take a stab at that. I think one of the lessons that we have learned in recent years is that we need in our intelligence collection systems to move toward more persistence. I know this is an open hearing and so I am getting a little

bit careful here, but today typically a commercial imaging satellite passes will have two passes over a target on any given day. Widely open on the Internet are the catalogue of warned satellite passes.

So one of the things that we would like to do is move toward systems that can be more persistent than a couple of times a day. The first logical move toward persistent collection would be with a SBR system, in that you can get day-night, all-weather coverage. You can take synthetic aperture radar images. You can also get indications of ground mobile targets.

So what we have determined to date is that with the SBR program that we are proposing we want to move in that direction. We have asked our contractors to provide a wide range of concepts and potential implementation strategies while we are maturing the technology. We have a very significant technology maturation effort ongoing on both SBR and TSAT.

So what we are doing is waiting until we get the results of these broad concept trades to pick any specific concept for SBR implementation. It may involve low Earth orbiting satellites, it may involve medium Earth orbit satellites, it may involve some combination of both. The amount of persistence will be an important factor in determination of the system we ultimately want to acquire.

Senator BILL NELSON. Mr. Secretary, last year we talked about you fully funding all of these space programs to their estimated cost over a 5-year period. You indicated otherwise, and that is different from the typical policy of almost every other major Pentagon program. The other programs are required to be fully funded by Milestone B, to try to avoid the type of cost growth problems that we see.

So I want to ask you, why have you implemented a specific policy which does not require that the space programs be fully funded?

Dr. TEETS. Early on in the conceptual development of a program, it is very difficult to get an accurate estimate of the run-out costs of the program. In the case of something like a SBR, we do not know yet which system we are going to buy. We do not know if we are going to acquire a medium Earth orbit satellite operating in conjunction with low Earth orbit satellites. We do not know how many satellites we would have in a low Earth orbit constellation.

All of that is in the trade space that we are currently investigating with our industrial partners. So what we have done for purposes of putting forth a FYDP plan is we have taken a point design, which happens to be nine low Earth orbit radar satellites, and we have done a reasonably good quality, independent cost estimate for what that would cost, and that is what we have put into the 5-year plan.

Senator BILL NELSON. Does that not really increase the chance that there is going to be cost growth?

Dr. TEETS. I think not. I think it is an intelligent estimate of what the costs for the program could be. I do think we are embarked in SBR on a program that will allow us to gracefully expand the Constellation. That is to say, one of the attributes that we are looking for from our contractors in proposing concepts is how would we phase this thing in in a way that you could kind of buy by how much you can afford?

If you want it truly persistent, if you want this thing to be a true surveillance system as opposed to a reconnaissance system, it will take years to populate and it will be an expensive system. But we want to be able to gracefully move in that direction.

Senator BILL NELSON. I am almost through, and I would like to be able to submit additional questions for the record.

Let us talk about space-based interceptors. The American Physical Society says it is going to take thousands. But even if we concluded that hundreds of these interceptors would have to be launched, are you aware of any Pentagon cost study which estimates what would be the total cost to orbit and maintain such a sizeable constellation of satellites?

Dr. TEETS. I am not, sir.

Senator BILL NELSON. Admiral Ellis.

Admiral ELLIS. No, sir.

Senator BILL NELSON. Do you believe we could afford such enormous numbers of satellites?

Admiral ELLIS. Clearly there would be costs associated with development and deployment of hundreds of satellites no matter what their construct, sir, and that would be a significant offset against existing programs and desired sensor capabilities. So there is no doubt there would be significant costs associated with something such as you describe.

Senator BILL NELSON. Admiral, what is the role of NORTHCOM and STRATCOM in missile defense? How are you coordinating?

Admiral ELLIS. Yes, sir, that is an excellent question. As I mentioned in front of the committee 2 weeks ago, I have the development, integration, and ultimate training responsibilities for this system as we begin to operationalize what is initially only a test bed. But it is a responsibility of the RCCs to oversee the defense of their AOR. I make those capabilities available to NORTHCOM for the continental United States and Alaska and to PACOM with regards to Hawaii since those are the apportionments.

They are the combatant commanders who would be responsible for employment of this capability. I would be the one who makes it available and, of its global character, it makes sense that a single individual or organization be part of that, that global organization. So that is the role we play and make that available then to General Eberhart or to Admiral Fargo for the employment by their commands.

Senator BILL NELSON. Admiral, you talk about a national test range for information operations. When might such a range be stood up?

Admiral ELLIS. We hope that consideration of that continues here in the near term. I think a capability like that is going to be an essential element of expanding and beginning to deliver on the promise of elements of information operations. While a great deal of that is classified, the fact of the matter is one of the challenges we will face is, how do you know that these capabilities indeed deliver on behalf of the warfighters, and that indeed implies a test capability so that we can certify those capabilities before we make them available as a legitimate alternative to other, perhaps kinetic, options.

Senator BILL NELSON. What kind of testing would be done there?

Admiral ELLIS. The testing would be of the full range or the full scope of non-kinetic options. It could be electronic warfare, it could be computer network operations—those types of elements that might allow us in the future to influence outcomes without necessarily destroying targets. Those are the types of things that need to be addressed and a facility that addresses it in a realistic environment would be of assistance.

Senator BILL NELSON. Would the Director of OT&E be involved?

Admiral ELLIS. I do not see any reason why he would not be involved, sir, in those types of efforts. We certainly intend to fully wring out those capabilities. It is what is absolutely essential if we are going to offer that as a legitimate capability to the warfighters in lieu of a kinetic option.

Senator BILL NELSON. If you will keep the committee apprised of the progress on this, I think we would appreciate it.

Admiral ELLIS. I certainly would, sir.

Senator ALLARD. Senator Nelson, I am ready to draw the hearing to a close. Both of us have some questions that we would like to submit and I would ask that you respond in a timely way and get something back to us within 10 days so that we can make it a matter of the record, if you would, please. Then we will close the record after 10 days.

I appreciate you taking time from your jobs to be here and to brief us about space and what is happening today and what we can look forward to in the future as far as space is concerned.

Senator BILL NELSON. I am sorry we did not ask too many questions of you, Admiral Cebrowski.

Senator ALLARD. He is the one that stimulated all this conversation.

I want to again thank all of you and thank you, Senator Nelson, and we will call the subcommittee adjourned.

[Questions for the record with answers supplied follow:]

#### QUESTIONS SUBMITTED BY SENATOR WAYNE ALLARD

##### INTEGRATING THE SPACE CADRES

1. Senator ALLARD. Secretary Teets and General Lord, please assess the progress made in integrating the space cadres of the Air Force, Army, Navy, and Marine Corps.

Secretary TEETS. I believe we have made significant progress in integrating the space cadres of the military services. In February, we completed the Space Human Capital Resources Strategy, the purpose of which was to integrate to the maximum extent practicable the space cadres of the military services. It provides the framework for integrating the cadres primarily from a managerial and educational perspective and it is now being implemented.

The Department of Defense (DOD) must ensure the services develop space professionals to fulfill their unique mission needs. We recognize there is a pressing need to synchronize space cadre activities of the National Security Space (NSS) community to increase efficiency and reduce unnecessary redundancies. We are accomplishing this by establishing Department-level managerial functions and creating a focal point within the DOD for space cadre activities. I am happy to report that, although we are just beginning implementation, we are making tremendous progress within the training and education arena. Furthermore, we have been working hard to synchronize the space programs of Air Force Institute of Technology and Naval Postgraduate School through our Space Professional Joint Oversight Board, and are also examining the possibility of creating a school that will be a center of excellence in joint space education and training. These are just two examples of initial success and there will be many more.

General LORD. First, the subcommittee must be aware the Space Cadre of the Services are fundamentally different, both in size and scope. (Air Force Space Cadre =~10,000, Navy =~700, Army =~1,000, and Marine Corps =~60.) But these differences contribute unique aspects producing a synergy of space expertise for the total DOD Space Cadre. Air Force Space Command, like the National Reconnaissance Office (NRO), is responsible for “cradle-to-grave” space systems development. Similarly, our people typically come into the space business very early in their careers, often as second lieutenant or airman accessions, and remain in space for the vast majority of their careers. The other Services typically don’t bring an individual into space until the 10-year period. Air Force Space Cadre members do everything from design, engineering, acquiring, testing, operating, sustaining, and integrating space capabilities; while the majority of the other Services’ Cadre members focus mostly on the latter. As a result, all Services’ Space Cadre members bring diverse sets of perspective, experience, and capabilities to the fight.

Though there are differences, we are working hard to make sure our Cadres can be integrated easily where appropriate. The greatest progress to date is in education initiatives. We built a continuum of courses to satisfy the education requirements of the Air Force Space Cadre and Reserved seats for all Services. One of the courses, Space 200, will be used by the Army as the front end to their initial course for entry into their Space Cadre (FA-40 course) starting July 2004.

My staff ensures that everything we do for the Air Force Cadre is applicable across the Services. We are implementing a certification program for the Air Force Space Cadre that sets requirements for education, experience, and training to achieve each level. We will also attach a certification level to each Space Cadre position and ensure Cadre member attains the required certification level in order to fill that respective position. We believe this certification program’s construct is a good strawman for the NSS certification program and are working to ensure the two are consistent and understanding of the differences in the various Service Cadres.

#### SPACE HUMAN CAPITAL RESOURCES STRATEGY

2. Senator ALLARD. Secretary Teets and General Lord, please provide a description and schedule of actions needed to implement the Space Human Capital Resources Strategy.

Secretary TEETS. A complete description of the implementation actions and schedule is contained in chapter two (pages 9–10) of the Space Human Capital Resources Strategy, provided to the committee in February 2004. To summarize, the Space Human Capital Resources Strategy will be implemented in three phases. Phase I is underway and we hope to complete it in the next few months. Phase I will create an organizational framework and our basic processes. Among other things, during Phase I we will charter a Space Human Capital Resource Senior Forum, the Space Professional Joint Oversight Board, hold the first Space Cadre data call, and develop policy concerning human capital development and use. Phase II represents those activities to be implemented through the summer. During that phase we will be holding an education and training summit to determine a common baseline of space professional competencies, implement appropriate best practices, and commence any demonstration projects. Phase III extends through the end of the calendar year. The specific activities of Phase III include crafting and presenting the first “Space Cadre Update Report” to the Secretary of Defense and Director of Central Intelligence (DCI) and to update the NSS strategy and plan as required. The Space Human Capital Resources Strategy, however, does not end after the initial three phases. Following the initial implementation, there will be an ongoing process to properly manage the space cadre. These are some of the activities which will be accomplished on an annual basis: deliver an annual “Space Cadre Update Report” to the Secretary of Defense and DCI; update the NSS strategy and NSS plan to reflect the tasks and activities associated with space cadre management; and implement best practices.

General LORD. We worked very closely with all Services in the National Security Space Human Capital Working Group to build the Space Human Capital Resource Strategy and have been implementing many of the actions for our Air Force Space Cadre since last summer. The Air Force Space Professional Capital Development Strategy is consistent with and supportive of the Space Human Capital Resource Strategy. As the Air Force Space Professional Functional Authority, designated by the Secretary of the Air Force, I am implementing the Air Force Space Professional Development Strategy consisting of six overarching segments.

First, our primary focus is developing the Space Professional Education Continuum of classes. Space 200 is the cornerstone of the effort and we have already grad-

uated 135 of our Air Force Cadre (active, Guard, and Reserves/office, civilian, and enlisted) members from the class. (Seven students were from the Army Space Cadre, six from the Navy, two Marines, two National Aeronautics and Space Administration (NASA), and one National Imagery and Mapping Agency (NIMA) participant. NRO participants are counted in the Air Force members). When fully implemented, we'll host approximately 360 students a year. Space 100, our space fundamentals course for entry-level space professionals, is on track for an October 2004 start date with an annual throughput of about 410 students. We are now determining the requirements for our Space 300 course targeted for space professionals at the 12–15 year point which will prepare our Cadre to fill senior level space positions.

Second, we've identified a new way of tracking the experience of every member of the Cadre. This Space Experience Code (SPEC) basically identifies the weapons system and the function performed (operational, acquisitions, or staff). We are using this code to identify the experience of every member of the Cadre as well as the requirements for every space billet in the Air Force. Our next step is to automate this process so it is integrated into existing Air Force processes and databases.

Third, a three level certification program was approved prescribing the education, training, and experience requirements for each level of certification. This program serves two primary purposes: it measures the overall health and status of the Cadre and its sets consistent standards for education, training, and experience at key points in each member's career. Certification is the glue that holds the Space Cadre construct together. Every member of the Cadre will be centrally tracked and every space billet will have a certification level attached to it.

Fourth, we're identifying, by name and position, every member of the Space Cadre. While doing so, we are identifying their experience using the SPECS previously discussed and assigning a certification level based on their experience and education level. We expect to complete this process with the active duty personnel by June this year and the civilians, Guard, and Reserves by end of the year. We are doing the same for each space billet in the Air Force by identifying what experience and certification level is required to enter the position. We expect to complete this portion by March 2005.

Fifth, we are publishing career guidance to the Space Cadre on a periodic basis through Vigilant Vectors and Spread-the Word briefings. These communications are intended to help the Cadre with career development issues until we've completed step 4. When step 4 is complete, we will have the picture on all of our requirements and will be better able to provide comprehensive guidance based on these requirements and projected Air Force growth. The sixth and final step involves establishing a permanent Space Professional Management Office. Our current effort is through a task force to jump-start the effort. Similar to the permanent Defense Acquisition Career Management Office for Air Force acquisition personnel, we realize there are enduring parts of this program requiring constant oversight and management. We will be moving the office under our Director of Personnel and they'll be responsible for day-to-day management of Space Professional Development while at the same time integrating with the Air Force's Force Development Program. Specific responsibilities of the office will include managing the certification program, working with the assignment teams to make sure we're putting the right person in the right job at the right time with the right education and training, continuing their excellent work with the Space Professional Education continuum and maintaining relationships with other DOD Space Cadre offices.

As you can see there are many interrelated parts for implementing this strategy. We have made great strides in the past year and are on track with our current plan. We envision that the complete Space Professional Strategy will be implemented, stabilized, and "normalized" for our Air Force Space Cadre by summer 2006.

#### OPERATIONAL RESPONSIVE LAUNCH PROGRAM

3. Senator ALLARD. Secretary Teets, you stated in your testimony that the operational responsive launch program is a spiral development effort. Do you have plans or requirements for larger operationally responsive launch vehicles?

Secretary TEETS. Although DOD has not defined the specific path we will take to an operationally responsive spacelift capability, we have a number of ongoing activities that will help refine our approach. Air Force Space Command is our lead organization for requirements definition and has initiated development of an Initial Capabilities Document (ICD) and an Operationally Responsive Spacelift Analysis of Alternatives (AOA). The purpose of the ICD is to list capability gaps and launch alternatives to meet the joint warfighters' requirements. The AOA will help clarify the



military utility of an operationally responsive spacelift capability and help select the most cost effective solution. Both activities should be completed by summer 2004.

Additionally, we have an ongoing technology demonstration called Force Application and Launch from the continental U.S. (FALCON). This joint Air Force-Defense Advanced Research Projects Agency (DARPA) effort includes a demonstration launch of a responsive small launch vehicle in fiscal year 2007. This activity holds promise to deliver our first limited operationally responsive launch (ORC) capability (1,000 lbs. to LEO). Follow-on activities to this demonstration are dependent on the ICD and AOA activities, but include potential spiraling paths to increased performance and larger vehicles.

#### RESPONSIVE SPACE CAPABILITIES

4. Senator ALLARD. Secretary Teets, we are now pursuing next generation satellites for virtually all the constellations we fly now—space-based infrared radar system (SBIRS) for the Defense Support Program (DSP), advanced extremely high frequency (AEHF) for military strategic and tactical relay military standard (Milstar), Mobile User Objective System (MUOS) for UHF Follow-on (UFOs), National Polar-Orbiting Operational Environmental Satellite System (NPOESS) for the Defense Meteorological Satellite Program (DMSP), Global Positioning System (GPS) III for GPS IIF, the Foreign Intelligence Agency (FIA) for current intelligence satellites, and we are developing new satellite technologies like Space-Based Radar (SBR) and transformational communications. I think it is fair to say that these next generation satellites look in many respects a lot like legacy systems—relatively large, expensive, technically complex satellites built for long satellite lifetimes. You have also described operationally responsive space as an important transformational goal. Do these next-generation efforts meet your transformational goal of achieving operationally responsive space capabilities?

Secretary TEETS. Operational responsive space (ORS) does not mean that we can or will get rid of large satellites. ORS is an important transformational goal but these capabilities will augment rather than replace our next generation satellites. Our next generation systems will provide critical capabilities that will meet our Nation's warfighting needs. Concurrently, the Air Force Space and Missile Center, Air Force Research Laboratory, NRO, DARPA, Office of the Secretary of Defense (OSD) Office of Force Transformation, and our national laboratories are sponsoring initiatives to decrease the size, cost, and timelines of satellite development. In addition to our next generation satellites we are also looking at operational responsive space launch. In the near term, we plan to demonstrate a more responsive and less expensive launch system capability of placing approximately 1,000-pound payloads into low Earth orbit.

#### STANDARDIZATION OF SPACECRAFT DESIGN AND OPERATIONS

5. Senator ALLARD. General Lord, your command's strategic master plan identifies as a near-term goal the development of "technologies to increase standardization of spacecraft design and operations, [and] to facilitate spiral development. . ." What programs contribute to these goals and how much progress has been made to date in achieving these goals?

General LORD. The Tactical Satellite (TSAT) demonstration program is underway to explore technologies and acquisition practices that will improve space system responsiveness, spacecraft standardization, and application of spiral development philosophy. The objectives of this series of space demonstrations are to evaluate the military relevancy of small satellites providing support directly to theater commanders, augmentation of large satellite constellations, and emerging through-space/in-space missions via warfighter experiments, exercises and wargames. The intent is to reduce risks in future high-responsive space system acquisition.

To date, there are two TSAT demonstrations underway; the first is sponsored by the Navy and the second by the Air Force. These two demonstrations are focusing on increasing the responsiveness of providing fielded military capability by developing the spacecraft in 15 months, launching it in 7 days from call-up, and completing check out and initial on-orbit operations in one day.

Four subsequent TSAT demonstrations are in the planning stages, and building upon the success of the first two missions, we will pursue technologies and design methods to further improve responsiveness. This will enable standardized spacecraft bus design and manufacturing, combined with the application of spiral development practices. These demonstration flights will also provide a proving ground for advanced technologies prior to incorporating them into operational system develop-

ment programs for both the satellites and launch systems. An added benefit is the vitalization of a domestic small satellite industrial capability.

The TSAT demonstration program fits well with a larger study currently underway at the Air Force Research Laboratory called the Responsive Space Advanced Technology Study (RSATS). Its charter is to identify an overall investment plan for rapid fielding of space capabilities. The overall scope of this larger plan includes investment in technologies for standardization of satellite components and interfaces, modularity of space systems, rapid assembly, integration and test, as well as high responsive launch systems. A core element of these thrusts is the notion of plug and play satellite interfaces, which allows flexible standardization of capable digital, analog, and electronic interfaces for satellite components. This concept parallels the developments in the personal computer industry for peripherals, expansion cards, and even new technologies. Plug and play satellite architecture enables more rapid development of satellite components because it avoids the time consuming process of developing and validating interface requirements.

#### STANDARDIZATION AND SPIRAL DEVELOPMENT

6. Senator ALLARD. General Lord, the Air Force tends to build small constellations of big satellites. How amenable is that "business model" to standardization and spiral development?

General LORD. Our satellite system development concept uses standardization and spiral development to the greatest extent possible.

Standardization is applied at the component, subsystem, and system level. Additionally, we continually look for standardization opportunities between the different families of satellite systems. As standardization opportunities are identified, we perform technical and cost trades to ensure they are beneficial from a development, operations, and sustainment perspective.

We are implementing spiral development within our satellite programs as it makes sense. Several future programs have planned spiral developments in the baseline programs.

One example of the use of standardization and spiral development is the SBIRS-High Component Single Acquisition Management Plan. This document strives to standardize spacecraft design and operations through a revised acquisition strategy, management philosophy, and structure that promotes the employment of spiral development techniques (e.g., risk identification and rigorous testing) for enhancing system capabilities. Progress is measured incrementally with current emphasis placed on standardizing hardware and software components of spacecraft performing similar missions. The next step is to attempt to standardize components of spacecraft performing different missions.

#### SPACE-BASED RADAR

7. Senator ALLARD. Admiral Ellis, U.S. Strategic Command (STRATCOM) is responsible for both intelligence, surveillance, and reconnaissance (ISR) missions and space operations. What is your assessment of the importance of the SBR system?

Admiral ELLIS. The SBR program represents tremendous potential as both an operational and Intelligence Community support platform. SBR will provide persistent surface target tracking, imaging and mapping capability in all weather. 24/7 capabilities provide worldwide operational data for situational awareness, force protection and strike support. These capabilities, horizontally integrated into the Nation's ISR network of systems will provide commanders and decision makers with a level of situational awareness, intelligence preparation of the battlespace, and information assuredness never before achieved.

8. Senator ALLARD. Admiral Ellis, what essential role do you see SBR filling that would not be filled by other systems in a larger ISR architecture?

Admiral ELLIS. SBR can potentially provide access to denied areas under reduced (different) threat considerations. This unfettered access to moving target indications and all-weather imagery is not limited by geopolitical boundaries, deploys in a much smaller footprint, and provides wide area coverage with more frequent revisit rates. This will provide persistence that current collection methods do not provide, i.e., Global Hawk, U-2, Joint Surveillance and Target Attack Radar System (JSTARS), and that is critical to support a common, worldwide operational picture.

9. Senator ALLARD. Admiral Ellis, does a large SBR constellation that fills both military and intelligence missions pose any unique challenges for you as a space operator?

Admiral ELLIS. The concept of supporting military and Intelligence Community requirements is not unprecedented. We have several constellations (GPS for one) that support the DOD, Intelligence Community, and even civilian missions. The principle challenge SBR presents is the level of interaction in meeting DOD and Intelligence Community needs.

Future DOD and Intelligence Community intelligence activities will interact within a horizontally integrated intelligence enterprise architecture linking individual, single-discipline information need requirements with multi-discipline requirements supporting operations and policy decisions. This transformational architecture will provide universal, dynamic, easy-to-use services readily available to all levels of decision makers and users. This solution will require greater automation of requirements and task development, and post-downlink processing, posting, exploitation and analysis, storage, retrieval, and data transfer.

10. Senator ALLARD. Secretary Teets, I wanted to commend you for implementing what I think is an effective SBR acquisition strategy. I know the Air Force has adopted a notional SBR architecture for planning purposes and I also know that the early estimates for this architecture appear to be very costly—in the tens of billion of dollars. If that cost estimate turns out to be accurate, do you believe that the notional nine satellite architecture is affordable?

Secretary TEETS. I will not allow the SBR to proceed beyond Key Decision Point (KDP)–B unless it can be shown to be affordable. Affordability is being aggressively addressed in Phase A, which will refine the SBR concept, architecture, and cost drivers resulting in a mature program cost baseline to support KDP–B. The Acquisition Strategy currently supports two prime contractor teams each carrying two or more concept sets, which gives us a broad trade space between cost and performance. At my request, early cost estimates have been conservative in considering technical and performance risks while supporting broad warfighting and intelligence utility. This has allowed a robust risk reduction program to be scoped for Phase A along with a focus on performance/cost trades to be completed before KDP–B. Funding is focused on design-specific risk reduction to drive down technology and affordability risks.

The need for SBR by our warfighters is greater than ever. To provide this capability we have an acquisition strategy that allows us to fully explore and mature various concepts and technologies. As these mature we will have much greater visibility into the cost of SBR. Affordability is key to the program and I will ensure we can afford it before proceeding into the next program phase.

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#### QUESTIONS SUBMITTED BY SENATOR JEFF SESSIONS

##### EVOLVED EXPENDABLE LAUNCH VEHICLE

11. Senator SESSIONS. Secretary Teets, I would like to inquire as to the health of today's launch providers. You have stated on several occasions that "assured access to space" is one of your top priorities. I think all of us on the committee appreciate the importance of your position and the requirement to launch America's satellites to support both warfighter and national needs. When you were here last November, you stated that we could anticipate the price of future launches increasing between 20 and 50 percent. Given that a second West Coast pad is now being built to handle additional launches from Vandenberg Air Force Base and given that both launch providers have already spent hundreds of millions, maybe even billions of their own money to make the Evolved Expendable Launch Vehicle (EELV) program a success up to this point, what do you anticipate the increases to launch funding will be beginning in fiscal year 2006?

Secretary TEETS. We are currently developing the EELV funding requirements to support a potential new contract strategy, aimed at ensuring our acquisition strategy of assured access to space via two viable launch service providers is maintained. Until we have firmer data from our next procurement, we will continue to estimate the increase as being on the order of 50 percent. The specific funding levels will be addressed in the fiscal year 2006 President's budget request.

12. Senator SESSIONS. Secretary Teets, will the expected increases be sufficient to cover the ongoing fixed infrastructure costs of each launch provider as well as the variable cost of each launch?

Secretary TEETS. The new contract strategy for the EELV, currently under development, has at its core funding for the contractor's infrastructure costs as well as the marginal prices for launch services ordered in fiscal year 2006 and beyond. However, financial losses resulting from launch services negotiated in previous years will not be reimbursed. Therefore, the U.S. Government's funding will not cover the entire cost of the launch provider's infrastructure because the contractors will have a mix of old and new launch services underway from fiscal year 2005 through fiscal year 2010.

#### GLOBAL POSITIONING SYSTEM

13. Senator SESSIONS. Secretary Teets, it is my understanding that the key to a successful GPS constellation is sustainment of the fleet of satellites. Where are we now in sustaining an optimal fleet?

Secretary TEETS. The Air Force is currently operating 28 satellites to ensure a high probability of at least 24 satellites. The current GPS Constellation is healthy, but aging—14 of 28 satellites are operating beyond their design lives, therefore continuous replenishment is necessary to ensure confidence in the constellation.

Air Force Space Command (AFSPC) assesses constellation sustainment on at least a quarterly basis, to determine the need, time, and optimal location (plane/slot) of future launches in order to sustain an optimal constellation within budget and schedule constraints. The Air Force is committed to sustaining the constellation of at least 24 satellites to support civil and military users worldwide.

14. Senator SESSIONS. Secretary Teets, how many GPS II Rs and GPS II Fs will need to be procured to keep the constellation at peak operating capability?

Secretary TEETS. The contract with Lockheed Martin was for 21 total GPS IIR satellites. All of these vehicles have been procured. The first was destroyed during launch in January 1997, leaving 20 vehicles. Since that time, the Air Force has successfully launched 10 IIRs with the remaining IIRs planned for launch through fiscal year 2007. The contract with Boeing for IIF satellites has finalized procurement of three vehicles, with intent to buy nine more and a predicted need for at least four additional IIF satellites to ensure the constellation is sustained until deployment of GPS III. Basically, we expect to launch 3–4 Block IIF satellites per year—until the next-generation of GPS is available—in order to sustain the constellation of 24 satellites with high confidence.

#### WIDEBAND GAFILLER SATELLITE PROGRAM

15. Senator SESSIONS. Secretary Teets, one of the bright hopes for the warfighters' ability to communicate on the battlefields around the world is the Wideband Gapfiller Satellite (WGS) program. I understand that one of these satellites will provide more broadband communications capability than all the Defense Satellite Communications System (DSCS) on orbit today. That's quite a capability. But because of today's shortage of broadband capability, most of the satellite communications our deployed soldiers use come through leased satellites. I believe that some of these leased satellites are foreign owned. I understand that we are spending nearly \$300 million in lease costs annually. The Air Force has procured three of these WGSs with the first launch expected late in 2005. I am concerned, however, that there is a 3-year gap in production before satellites 4 and 5 would be funded. Would you explain the Air Force's rationale for this 3-year gap and would you comment on the Air Force's commitment to purchase the next two satellites, currently on option?

Secretary TEETS. As part of the transformational communications architecture, which ensures continuous availability of communications for the warfighter, the Air Force will renegotiate, in fiscal year 2005, an option on the current contract to purchase WGS 4 and WGS 5. In the fiscal year 2005 President's budget request, the Air Force has included in fiscal year 2006–2008 an estimate of the funding required for satellites 4 and 5. This estimate will require updating in the fiscal year 2006 budget, following the renegotiation. Satellites 4 and 5 will be launched in fiscal year 2009 and 2010, respectively.

When first developed, warfighter requirements for wideband satellite communications were satisfied with an initial contract for three WGS satellites, with an option to purchase additional satellites in the future. Based on the resources then available, the Air Force was able to fund procurement of three WGS satellites, but due to budget constraints was unable to begin funding additional satellites until fiscal

year 2006. While this acquisition strategy satisfies warfighter needs, it unfortunately results in a production gap between satellites 3 and 4.

The Air Force would certainly like to reduce or eliminate the production gap, thereby avoiding parts obsolescence and manpower fluctuation issues; however, that would require an additional \$400 million or more in the fiscal year 2004–2006 time frame.

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QUESTIONS SUBMITTED BY SENATOR DANIEL K. AKAKA

TRANSFORMATION FLIGHT PLAN

16. Senator AKAKA. Secretary Teets, the United States Air Force Transformation Flight Plan, released in November 2003, lists a number of anti-satellite and space-based weapons programs by name that it plans to deploy by 2015. These programs include: the Air-Launched Anti-Satellite Missile, the Ground-Based Laser, the Space-Based Radio Frequency Weapon, and Hypervelocity Rod Bundles. This seems to be a bold step in the direction of a weaponized space. What funding is in the current budget to develop the four new weapons systems I just listed?

Secretary TEETS. The Air-Launched Anti-Satellite Missile, the Ground-Based Laser, the Space-Based Radio Frequency Weapon, and Hypervelocity Rod Bundles are not funded programs, but are “future system concepts.” These are marked in italics in the 2003 Air Force Transformation Flight Plan (roadmap) to distinguish them from funded programs. While some have science and technology and/or experimentation funding tied to them, many, such as those identified in this question, do not. Historically, most will never be developed. Their inclusion is to address the Office of Force Transformation’s request for “out-of-the-box” thinking in the Service transformation roadmaps.

The upcoming 2004 edition of the Transformation Flight Plan has already been edited to more clearly distinguish between funded programs and future system concepts and to only include such future system concepts that actually have Air Force science and technology or experimentation funding tied to them.

ANTI-SATELLITE WEAPONS

17. Senator AKAKA. Secretary Teets, by pursuing anti-satellite (ASAT) weapons, are we not signaling to potential enemies that they should take the same course of action and spend more of their defense budgets on space warfighting capabilities?

Secretary TEETS. ASAT weapons are nothing new. The former Soviet Union had an operational anti-satellite system in the 1980s and early 1990s. We have the responsibility to explore a wide range of possible capabilities and systems that will enable us to deny our adversaries the advantages gained from space that could be used in a manner hostile to the United States or our national interests. The force structure of the armed services and the weapon systems they utilize are and will continue to be fully compliant with our international obligations, treaties, and our right to self-defense as spelled out in the United Nations (U.N.) Charter.

SPACE-BASED KINETIC ENERGY TEST BED

18. Senator AKAKA. Secretary Teets, \$10.5 million was included in the fiscal year 2005 Missile Defense Agency (MDA) budget request for research on a space-based kinetic energy test bed. The research is supposed to lead to on-orbit testing in the 2010–2011 timeframe, and may result in a limited experimental constellation in 2012. Fort Greely, which is where the MDA will be fielding its initial missile defense deployment, also started as a test bed. Is it your intent to use this test bed as a starting point for weaponizing space?

Secretary TEETS. No, it is not our intent to use the test-bed as a starting point for weaponizing space. The President has directed the DOD to develop a national missile defense system to ensure the national security of the United States. As the MDA pursues promising technologies, it is incumbent upon them to explore all alternatives and perform research and experimentation in the areas of these alternatives.

The force structure the armed services studies, plans for, and acquires to provide for national defense is now and will continue to be fully compliant with our international obligations, treaties, national policy, and our right to self-defense as spelled out in the U.N. Charter.

19. Senator AKAKA. Secretary Teets, what is the administration's position on the pursuit of space weapons by the United States?

Secretary TEETS. In May 2001, when Secretary of Defense Donald Rumsfeld announced the implementation of the Space Commission he emphasized two key points concerning our space policy: "The United States is committed to the exploration and use of outer space by all nations for peaceful purposes for the benefit of all humanity. Peaceful purposes allow defense and intelligence-related activities in pursuit of national security and other goals." The Secretary went on to say: "Consistent with treaty obligations, the United States will develop, operate, and maintain space control capabilities to ensure freedom of action in space, and if directed, deny such freedom of action to adversaries." In the 3 years since this statement, this position has not changed.

#### GLOBAL POSITIONING SYSTEM

20. Senator AKAKA. General Lord, the GPS III satellites, which will provide the GPS with better protections against jamming, were originally scheduled for launch in 2009. That date has since been pushed back to 2012 because of cost considerations. Why is the Air Force now focusing on the development of risky new technologies, such as laser communications satellites and space-based radars, when near-term needs to protect our space assets, such as the planned upgrade to GPS, are being delayed?

General LORD. While the Air Force is proceeding to develop laser communications and a SBR capability, this does not come at the expense of GPS. The initial GPS III program called for an fiscal year 2009 first launch; however, in addition to being costly, the program was assessed as being overly aggressively and high risk. Modernization of the GPS II space segment, coupled with user equipment improvements, will provide an interim anti-jamming capability to support current requirements to counter existing threats. The first launch of a modernized higher-power GPS Block II satellite is projected for March 2005. This modernization campaign best meets the DOD's near-term navigation warfare requirements, and supports an fiscal year 2012 first launch of GPS III, still necessary to meet projected future threats.

#### KINETIC ENERGY ANTI-SATELLITE

21. Senator AKAKA. General Lord, Air Force officials have opposed the Kinetic Energy Anti-Satellite system in the past because of concerns about creating dangerous space debris, but the Transformation Plan envisions a similar Air-Launched ASAT Missile. Is the Air Force no longer concerned that use of a kinetic energy anti-satellite weapon will create debris that could threaten our own and allied space assets?

General LORD. The Air Force continues to be concerned with the problem of space debris. A kinetic energy anti-satellite weapon was only one of a variety of solutions aimed at meeting the Quadrennial Defense Review's operational goal of space superiority. There are, however, other long-term concepts that can be pursued that do not have the negative side effects of creating large amounts of space debris. This is one of the reasons this concept has been removed in the most recent draft of the Air Force Transformational Flight Plan (to be released in July 2004).

#### QUESTIONS SUBMITTED BY SENATOR BILL NELSON

##### MISSILE DEFENSE PROTECTION OF HAWAII

22. Senator BILL NELSON. Admiral Ellis, starting in September, when the Bush administration plans to deploy a national defense against long-range missile attack, you will be the person responsible for protecting all 50 States from such an attack. I understand that because of radar coverage limitations with the current system, in order to protect Hawaii from an attack from North Korea, a Navy ship will be required to be on station off the North Korean coast. This ship will provide the radar coverage for the system. The question then arises as to whether the Navy is committed to putting a ship on station off the coast of North Korea to provide the necessary radar coverage. Secretary of the Navy, Gordon England, reportedly stated recently that the Navy would provide "virtually continuous" deployment of a ship off of North Korea. What does "virtually continuous" mean—will a Navy ship be on station, 24 hours a day, 7 days a week, to protect Hawaii from a long-range missile attack, starting in September?

Admiral ELLIS. The Navy contribution to the missile defense capability is just as you describe. It is a radar tracking capability that will provide initial cuing in addi-

tion to our overhead sensors and complement other ground-based radars. The Navy has set milestones and is committed to identifying ships and upgrading their radar configuration to provide that on-station capability of which the Secretary spoke.

#### SPACE-BASED INTERCEPTORS

23. Senator BILL NELSON. Secretary Teets, at a recent conference, General Kadish, Director of the MDA, discussed his plans for space-based interceptors (SBIs). He was quoted as saying, "From the standpoint of the threats we face at this particular time . . . we don't need to put weapons in space. But that situation may or may not last a long time." He also reportedly said that there is likely to be a national debate on deploying weapons in space before the MDA begins deploying SBIs. The MDA wants to spend close to \$100 million on SBI research next year. That is a significant amount of money—despite the fact that even General Kadish says there is no threat that warrants it. Yet there is no sign that the administration desires to have a national debate or discussion on deploying weapons in space. Rather, the administration appears to be creeping slowly towards weaponizing space, hoping no one notices. Do you know what the goal is of the SBI research and will any of this research require or include work that could lead to space-based weapons?

Secretary TEETS. One of the MDA's goals is to understand the minimum constellation size and associated ballistic missile defense system interfaces where a SBI capability begins to cost-effectively contribute to a layered defense against all threat classes in all phases of flight. MDA is not restricting their capability alternative studies to only global boost phase intercept defense. In fiscal year 2005 MDA will initiate space based technology development. MDA's plan is to mature the technology (light-weighting of interceptor components including the kill vehicle and development of a liquid axial stage). This would also allow MDA, by 2008 at the earliest, to have the ability to determine whether it is technically and economically feasible to pursue an SBI capability for ballistic missile defense (BMD).

24. Senator BILL NELSON. Secretary Teets, if there is a goal or desire to weaponize space, when will the administration seek specific authority to take this significant step and do you believe the U.S. should place weapons in orbit?

Secretary TEETS. There is no specific desire or goal to "weaponize space." As stated by Secretary of Defense, Donald Rumsfeld, during testimony to the Full House on February 5, 2002: "Our goal is not to bring war into space, but rather to defend against those who would. Protecting U.S. military assets in space from attack by foreign aggressors must be a priority in the 21st century." (Secretary Rumsfeld to the Full House, February 5, 2002.) The DOD is responsible for ensuring our national security. It is, therefore, incumbent upon the armed services to remain open to a wide range of possible capabilities and systems that will enable us to deny our adversaries the advantages gained from space that could be used in a manner hostile to the United States, our citizens, or our national interests. The force structure of the armed services is and will continue to be fully compliant with our international obligations, treaties, and our right to self-defense as spelled out in the U.N. Charter. If the research and development (R&D) proves promising and an exhaustive analysis of alternatives concludes that the best/only way to ensure our national security is to base a defensive capability in space, than that option will be provided to the President and Congress for subsequent approval and funding.

25. Senator BILL NELSON. Secretary Teets, what is the policy regarding space-based weaponry and would such a SBI system be consistent with that policy?

Secretary TEETS. The current DOD policy concerning space capabilities is directly derived from the National Space Policy, Presidential Decision Directive/NSC-49 dated September 14, 1996. The actual language is classified. The force structure the armed services studies, plans for, and acquires to provide for national defense is now and will continue to be fully compliant with our international obligations, treaties, national policy, and our right to self-defense as spelled out in the U.N. Charter.

26. Senator BILL NELSON. Secretary Teets, what risks to our own military and commercial satellites would this pose, and what additional risks to the U.S. would weapons in space pose?

Secretary TEETS. As stated by Secretary of Defense, Donald Rumsfeld, during testimony to the Full House on February 5, 2002: "Our goal is not to bring war into space, but rather to defend against those who would. Protecting U.S. military assets in space from attack by foreign aggressors must be a priority in the 21st century." The DOD is responsible for ensuring national security. It is, therefore, incumbent

upon the armed services to remain open to a wide range of possible capabilities and systems that will enable us to deny our adversaries the advantages gained from space that could be used in a manner hostile to the United States, our citizens, or our national interests. Furthermore, the force structure of the armed services and the weapons systems they utilize are and will continue to be fully compliant with our international obligations, treaties, national policy, and our right to self-defense as spelled out in the U.N. Charter.

27. Senator BILL NELSON. Secretary Teets, what is the threat being addressed, what weapons do we need, and when would we need these?

Secretary TEETS. It is our goal to stay ahead of any potential adversary; the development of new and emerging technologies ensures we keep our edge. The asymmetric advantage the U.S. has gained from our space capabilities has not gone unnoticed by our potential adversaries. As such, we continuously review our space system vulnerabilities and are looking at ways to make our space services and systems less susceptible to enemy attack. In January 2004, we asked the National Intelligence Council to update the threat assessment contained in the 1999 National Intelligence Estimate (NIE) on the Threats to U.S. Space Systems and Operations. The actual assessments are classified, but the threat posed by our potential adversaries continues to grow.

28. Senator BILL NELSON. Secretary Teets and Admiral Ellis, are you aware of the study by the American Physical Society that indicated you would need a thousand or so space-based interceptors in orbit in order to make an effective system, and the follow-on study by the Congressional Budget Office (CBO)—which used much more optimistic assumptions, but still concluded that hundreds of interceptors would have to be launched?

Secretary TEETS. The MDA is aware of the American Physical Society study and that the CBO is conducting a follow-on study. I understand the CBO report is nearing completion. In late fiscal year 2003 the MDA developed a response to the American Physical Society which analyzed space based interceptor constellation sizes and came to a conclusion that constellations of 150 to 450 satellites would be required.

Admiral ELLIS. No, I am not aware of this study.

29. Senator BILL NELSON. Secretary Teets and Admiral Ellis, are you aware of any Pentagon cost studies which estimate what the total cost to orbit and maintain such enormous constellations of satellites would be?

Secretary TEETS. The MDA reports that as of this time they have not conducted a cost study which estimates the total cost to orbit and maintain a large constellation of satellites.

Admiral ELLIS. No, I am not aware of such studies.

30. Senator BILL NELSON. Secretary Teets and Admiral Ellis, do you believe we could afford such enormous constellations of satellites, when we are currently struggling to keep far smaller and less complex satellite programs on schedule and on budget?

Secretary TEETS. Building a responsible defense budget demands constant balancing between warfighter requirements and available, affordable technologies. It is premature to speculate on the ultimate character of a SBI constellation. As the concept and technologies mature, we anticipate that the MDA will address the cost, schedule, and performance issues related to a constellation of SBIs.

Admiral ELLIS. Clearly, there would be significant costs associated with the development of hundreds of satellites no matter what their construct. We must be able to balance our system development efforts with the value of the same to our national security.

#### MISSILE DEFENSE TESTING

31. Senator BILL NELSON. Admiral Ellis, by law, operational testing is defined as “the field test, under realistic combat conditions, of any item of (or key component of) weapons, equipment or munitions for the purpose of determining the effectiveness and suitability . . . for use in combat by typical military users.” The law also states that the Pentagon’s chief test authority, the Director of Operational Test and Evaluation (OT&E), is “the principal operational test and evaluation official” who shall “approve (in writing) the adequacy of the plans for operational test and evaluation.” The law says that a major weapons program “may not proceed beyond low rate initial production until initial operational test and evaluation of the program



has been completed.” The intent of this law is to prevent the mass production and deployment of a system prior to completion of independent, combat-realistic operational testing. The key criteria for operational testing are independence and combat-realism. None of the completed or planned missile defense tests meet these important criteria. No other weapons system has ever been deployed without any plans for operational testing. In September of this year, the administration plans to deploy a long-range missile defense for the United States. I understand you will be the person responsible for this defense, and also responsible if the defense fails against a real enemy missile. Would you like to see the national missile defense system operationally tested in a combat-like way as soon as possible—both to assess how it will work in battle, and to fix any problems that almost surely will be revealed by such testing?

Admiral ELLIS. My belief is that this effort is currently underway. Over an extended period of time, as we move through the developmental test phase, we are placing the system and evolving its capabilities in the operational environment where it would be employed. There are obviously elements that cannot and, hopefully, will never be tested from a full operational capability—such as the launch of threat missiles from potential adversaries. I do believe that the elemental testing that is underway will characterize the dynamics of and the environment in which this system is intended to operate. We will define and refine the sensor capabilities. We will assess the command and control linkage and the command and control processes and all of those elements will then be integrated in a comprehensive manner.

32. Senator BILL NELSON. Admiral Ellis, current law provides for independent testing of major weapons systems to make sure they are suitable and effective. Do you support the intent of this law, as it applies to national missile defense?

Admiral ELLIS. In my view, we are getting to the intent of that law by involving the OT&E people in the process. With large-scale systems, the complexity of the tests, the expense of testing, and modern simulation capabilities allow us to integrate elements of both developmental testing and operational testing as the system evolves. Technology and simulation now allow us, for the first time, to bring these elements together in a concurrent manner that more efficiently uses national resources and, arguably, more quickly delivers the capabilities that we need.

#### U.S. NORTHERN AND STRATEGIC COMMAND

33. Senator BILL NELSON. Admiral Ellis, what are the roles of U.S. Northern Command (NORTHCOM) and STRATCOM in missile defense, and how are the efforts coordinated?

Admiral ELLIS. Change Two of the 2002 Unified Command Plan (UCP) tasked STRATCOM to plan, integrate, and coordinate the global missile defense capabilities of the Nation. STRATCOM is operationalizing the capabilities being developed and deployed by the MDA.

We are leading the development of the necessary doctrine, concepts of operations (CONOPs), and operational plans in coordination with our subordinate Service component commands and the other combatant commanders. This effort requires that we define the broad interrelationships among the Global Ballistic Missile Defense (GBMD) mission and other mission areas, such as ISR, strike operations, and information operations. Operationalizing GBMD capabilities also requires detailed planning to address the policy, rules of engagement, force employment, force readiness, and logistics support, and tying together diverse system elements including sensors, interceptors, and the command and control network.

NORTHCOM and Pacific Command (PACOM) are our principal warfighting partners in preparation for activation of the initial defense capability. With them, we are continuing to refine and validate our plans in a series of exercises and readiness assessments designed to prepare the responsible combatant commands for assuming operational responsibility for the initial elements of this nascent defensive system.

Operation Iraqi Freedom (OIF) demonstrated an unprecedented level of cross-theater missile defense cooperation and coordination. Integrated early warning data from Army, Navy, Air Force, and other intelligence sensors provided vital data supporting Patriot missile engagements of all threatening theater ballistic missile launches. Expanding upon OIF's example of an integrated and effective defense, STRATCOM is developing the GBMD CONOP and the battle management architecture to provide full capabilities for regional combatant commanders to defend their areas of responsibility.

## SPACED-BASED INFRARED RADAR SYSTEM-HIGH

34. Senator BILL NELSON. Secretary Teets and General Lord, the SBIRS-High has experienced and is continuing to experience significant problems. When complete, the system will consist of two high Earth orbit (HEO) sensors and five geosynchronous Earth orbit (GEO) satellites. The current problem is with the HEO-1 sensor, but we are also beginning to hear that there may be significant problems with the GEO satellites as well. What is the current status of SBIRS-High—how late is the HEO-1?

Secretary TEETS. The first HEO payload delivery is scheduled for July 2004 (classified launch date). Electromagnetic Interference (EMI) is within acceptable limits. The second HEO payload delivery is planned for November 2004 (classified launch date). Testing so far supports EMI performance within specification for the second HEO payload. The SBIRS-High GEO program is currently being replanned due to recent technical maturity challenges. Schedule impacts include a 12-month schedule delay for GEO-launches. There is an approximate \$1.5 billion program cost growth from fiscal year 2004–fiscal year 2013.

We are replanning the Signal Processing Assembly (SPA) flight software for GEO satellites. The original design was assessed as insufficient to meet mission requirements.

Other contributing factors have exacerbated the cost over-runs:

1. Extensive rework of the HEO sensors as a result of the EMI problems
2. HEO and GEO Single Board Computer (SBC) anomaly resolution
3. Underestimation of space-to-ground interface complexities
4. Known technical issues did not close as planned
5. Extremely challenging contractor manpower roll-off plans

A SBIRS-High program replan is underway. Preliminary results were presented to the Defense Acquisition Executive (DAE) on April 20, 2004. Full cost and schedule impacts are to be completed by July 2004 and a new acquisition program baseline (APB) will be established thereafter. The Air Force is committed to fully funding the cost of the replan in the fiscal year 2006 President's budget.

General LORD. SBIRS-High program obtained Nunn-McCurdy recertification in May 2002. At that time, we had expected to deliver the first of two HEO payloads by February 2003. After working through the electromagnetic interference problems, we are confident that we will deliver HEO-1 by end of July 2004. Due to the significant time and resources spent while focused on the highly elliptical Earth orbit challenges, we are in the process of replanning the GEO development, which will result in a 1-year slip to the GEO launch schedule.

35. Senator BILL NELSON. Secretary Teets and General Lord, is there a problem with the GEO satellites? We are aware that there may be some spillover effect on the GEO satellites, as a result of the delays and increased costs of the HEO-1 sensor, but is there a separate technical or schedule problem with the GEO satellites?

Secretary TEETS. The Air Force is addressing a GEO schedule issue tied to development of flight software. This is the replan of the SPA flight software for GEO satellites previously described. This schedule problem, along with HEO delays, has resulted in cost growth to the program approximately \$1.5 billion from fiscal year 2004–2013 and a 1-year delay in launch of the first SBIRS GEO satellite.

General LORD. SBIRS-High has experienced the normal challenges of an acquisition program. GEO is experiencing schedule challenges as a result of the delays in the HEO schedule. There are also technical challenges with the data throughput capability of the SPA and with the single-board computer onboard the GEO satellite. We are working through these challenges with Lockheed Martin, our prime contractor, to ensure a low-risk solution.

36. Senator BILL NELSON. Admiral Ellis, how important is the SBIRS-High to your mission?

Admiral ELLIS. The capabilities it promises are absolutely essential to the mission of the STRATCOM.

37. Senator BILL NELSON. Admiral Ellis, what sort of impact would a significant delay in either of the two parts of the SBIRS-High have on your mission?

Admiral ELLIS. Recent conflicts and world events have demonstrated that the threats SBIRS is designed to target are here today. Significant delays in meeting the current baseline for SBIRS-HEO or GEO capabilities will negatively impact STRATCOM's missions of Information Operations (IO), Space Operations, Global Strike, Integrated Missile Defense (IMD), and ISR. Without the transformational capabilities SBIRS would provide in missile warning, missile defense, technical intel-

ligence and battlespace characterization, STRATCOM would experience gaps in the following capabilities: the ability to support the space surveillance aspect of space control (IO); the ability to provide theater support for battle damage assessment/situational awareness (Space Operations); the ability to provide warning necessary to protect U.S. interests around the world (Global Strike); the ability to provide the accuracy needed to optimize weapon systems (IMD); and the ability to provide data necessary to address future threats and adequately conduct treaty monitoring (ISR).

38. Senator BILL NELSON. General Lord, in your prepared statement for the record you refer to spaced-based infrared capabilities but do not mention the SBIRS-High by name. Should we read something into this?

General LORD. No. I was referring to all overhead infrared sensors, which includes the SBIRS-High.

#### TRANSFORMATIONAL SATELLITE

39. Senator BILL NELSON. Admiral Ellis, the TSAT communications satellite is in the early phases of technology development and risk reduction. When operational, TSAT is designed to have substantially improved secure, protected, high data rate communications capability. It will be a successor to the Milstar AEHF satellite family. The current plan is to have the first TSAT take the place of the fourth AEHF satellite. How important to you is the ability to have secure communications at all time and why?

Admiral ELLIS. It is vital to STRATCOM's mission as well as the missions of the other combatant commanders to have secure communications at all times. In the case of STRATCOM, our ability to hold targets at risk anywhere and anytime depends on secure communications for all phases of the mission, from planning to execution and, if required, recall. This need has been validated by the President, as recently as June 2003 with the release of National Space Policy Directive 28.

40. Senator BILL NELSON. Secretary Teets and General Lord, the decision to buy the fourth AEHF satellite must be made by October as I understand it—is that correct?

Secretary TEETS. No, the decision must be made in time to be included in the fiscal year 2006 President's budget, and is scheduled for November 2004. This decision would result in advance procurement funding in fiscal year 2006, and full funding in fiscal year 2007, with congressional approval. The launch of satellite four would be in fiscal year 2010.

General LORD. This decision is a complex one. Yet, the optimal decision point based on AEHF development schedules is in the fourth quarter of calendar year 2004.

However, many factors play into this decision: predicted mean mission duration of AEHF, MilStar, and DSCS satellites, AEHF development progress, and the outcome of TSAT Phase B contracts.

As we approach the fourth quarter of 2004, we will look at all these factors to determine the right way forward.

41. Senator BILL NELSON. Secretary Teets and General Lord, the TSAT program, as I understand it, will not have its various technologies sufficiently mature to confidently include in the TSAT until the third quarter of 2006. One significant technology, multi-access lasercom, will not be sufficiently mature until 2008. Could you explain how you can confidently forego the fourth AEHF, and rely on the first TSAT as a substitute if you won't know if your technologies are viable until 2006 and 2008?

Secretary TEETS. We have not yet made the decision on whether to purchase a fourth AEHF satellite. This decision is scheduled for the fall of 2004. The decision will involve assessing a number of factors: the risk associated with TSAT technology maturation, anticipated launch schedules for AEHF and TSAT, and warfighter satellite communications requirements. We will carefully evaluate all of these factors before deciding on whether or not to go forward with AEHF number four.

General LORD. We have taken extensive measures to put into place mitigation plans to reduce the risk of the program and still allow us to meet the launch schedule. The current schedule matures all key technologies to a level consistent with DOD and commercial best practices for space systems. The goal of the TSAT program is to provide critical communications on the move and ISR support to the warfighter that will meet the growing needs of the user community. To do this, will require a balance of the technology risk with program schedule. We will continue

to monitor and assess technology maturity throughout the life of the TSAT program. Should the technology fail to mature to a sufficient level in 2006 and/or 2008, we will use backup technology to provide the warfighters a capability significantly greater than currently available.

42. Senator BILL NELSON. Secretary Teets, General Lord, and Admiral Ellis, the fourth AEHF would launch in fiscal year 2010. The first TSAT would not be ready until fiscal year 2012. This certainly seems to be a large gap. This assumes that the TSAT will even be ready on time. As we know every satellite program recently is late—some by years. What confidence is there that the secure communications will be maintained?

Secretary TEETS. I am very confident that secure communications will be maintained. Although the first TSAT is intended to complete the AEHF constellation, during the 2010–2012 timeframe secure communications will be sustained by a combination of the first three AEHF satellites and remaining Milstar satellites on orbit. Working together, these satellites will provide worldwide coverage ensuring uninterrupted, protected, secure communications support.

General LORD. I am very confident secure communications will be maintained. Although the first TSAT is intended to complete the AEHF constellation, during the fiscal year 2010–2012 time frame, secure communications will be sustained by a combination of the first three AEHF satellites and remaining Milstar satellites on orbit. Working together, these satellites will provide worldwide coverage from 65° N to 65° S, thus ensuring uninterrupted support.

Admiral ELLIS. The 14–15 April 2004 SATCOM Senior Warfighter Forum (SWarF) discussed the possibility of a gap in secure AEHF communications. We are confident limited secure, survivable, protected communications can be maintained with a mixed constellation of AEHF and Milstar satellites until 2017. The SWarF voiced concern that higher capacity, IP-based and communications-on-the move requirements cannot be met until the TSAT system is implemented. The SWarF's greatest concern—delaying TSAT and transformational communications—affects all future missions and impedes the ability of the Services to transform their operations. While the SWarF will again review the possible need for AEHF 4/5 this summer, they are unanimous in recommending the TSAT funding line remain stable to allow a fiscal year 2012 first launch.

43. Senator BILL NELSON. Secretary Teets and General Lord, why not buy the fourth AEHF, and not be in a position to force the technology and schedule of the TSAT? Our history of rushed satellite programs isn't good either. Even comparatively simple satellites have turned out to be difficult.

Secretary TEETS. The DOD has identified the need for a near-term decision to purchase a fourth AEHF satellite and plans to make the decision this fall. The decision will be based on a comprehensive evaluation of the TSAT program and associated risks. The program office is not forcing the technology and appropriate steps are in place to ensure the delivery of capability on schedule. The TSAT schedule is commensurate with past and ongoing communications satellite programs such as Milstar II and AEHF. Technology development is on schedule to meet Technology Readiness Level 6 (TRL 6) prior to the Preliminary Design Review (PDR), currently scheduled for 2007. This is consistent with commercial and DOD best practices. Finally, to manage the technology risk, the program office has identified mature technology alternatives that can be used to maintain schedule.

General LORD. The Transformational Communications Architecture (TCA), completed in 2003, established the basis for introducing clearly defined, improved communications capabilities for the warfighter. Technology development is on schedule to a level consistent with commercial and DOD best practices. The schedule is also commensurate with past and ongoing communications satellite programs such as Milstar II and AEHF. Finally, to manage the technology risk, the program office identified mature technology alternatives that can be used to maintain schedule. TSAT offers an enormous increase in capabilities designed to meet the growing needs of the warfighter in the 2012 time frame. Without timely TSAT delivery, we won't be able to provide "communications-on-the-move."

#### EVOLVED EXPENDABLE LAUNCH VEHICLE

44. Senator BILL NELSON. Secretary Teets and General Lord, what is the current status of the Boeing suspension, when will you make the buy three decision for the EELV program, and will you wait until Boeing is off suspension?

Secretary TEETS. The suspension remains in effect. It will be terminated as soon as Boeing has satisfied the Air Force that the company has taken appropriate remedial actions.

We want to make a Buy III decision in 2004. We hope Boeing will be off suspension by the time we release the Buy III procurement. While we desire competition between both EELV contractors in Buy III, we do not anticipate delaying the procurement of any individual launches due to the Boeing suspension.

General LORD. As of April 28, 2004, Boeing is still suspended. The Air Force Deputy General Counsel for Contractor Responsibility (SAF/GCR) determines whether or not to continue the suspension. The Air Force desires to retain competition as an element of the Buy III strategy, but the Air Force will not delay launch awards because of the Boeing suspension. We will continue to follow the provisions of the Federal Acquisition Regulation (FAR) concerning debarment and suspension. FAR Subpart 9.4 prohibits the government from soliciting offers of awarding contracts to suspended contractors, absent a determining by the Air Force that there is a compelling reason to do so. The strategy for Buy III is under development, a process that can normally take 180 days before the request for proposal is released. This schedule may be further extended to incorporate a reliability study recently tasked by the acting Under Secretary of Defense for Acquisition, Technology, and Logistics as part of the EELV Nunn-McCurdy certification.

45. Senator BILL NELSON. Secretary Teets and General Lord, how much will the EELV costs be increased in fiscal year 2005 and beyond as a result of the Boeing suspension and how much of the increased EELV costs are as a result of the downturn in the commercial satellite market?

Secretary TEETS. Currently the U.S. Government's total cost as a result of the Boeing Procurement Integrity Act violation is estimated at \$275 million (fiscal year 2004–2009).

Of the total reported increase in EELV program costs, \$8,640 million through 2020, or approximately 63 percent is attributable to the downturn in the commercial market.

General LORD. Currently the Federal Government's cost as a result of the Boeing Procurement Integrity Act violation, leading to the suspension, is estimated at \$275 million (fiscal year 2004–2009). The Air Force estimated the downturn in the commercial market to account for 63 percent of the total increase in the EELV cost.

46. Senator BILL NELSON. Secretary Teets and General Lord, what is assured access to space and why do we need it?

Secretary TEETS. Assured access to space is the ability to launch critical space assets when required. Basically, it is the ability to ensure support of our warfighter and national security requirements with space-based assets when, where, and how they need it. It is a key enabler to maintaining the asymmetric advantage the United States has in space. Having two EELV providers is the foundation of assured access. Without two providers, a catastrophic launch failure in a single provider environment means we are out of the launch business for an extended period of time. We would be unable to ensure the needs of our warfighters are met. It's a position I never want to see this country in. It's my job to see that doesn't happen.

General LORD. In the "Report to Congress on Assured Access to Space for the United States," delivered by the Deputy Secretary of Defense on March 18, 2003, we defined assured access to space "as the ability to launch critical space assets when required." The report notes the EELV program's "Atlas V and Delta IV launch systems are the essential elements of assured access to space," and goes on to say, "maintaining two providers is critical to mitigate the risk of possible early design flaws, gain confidence that all government space launch requirements can be met, and increase the probability of assured access to space without protracted downtimes." In order to provide timely support to our warfighters, including national intelligence, we require the ability to place space assets on orbit whenever needed.

#### INFORMATION OPERATIONS TESTING

47. Senator BILL NELSON. Admiral Ellis, in your prepared testimony, you discuss your plan to establish a national test range for IO. This sounds very interesting and useful. When might such a range be stood up and what sort of testing would be done there?

Admiral ELLIS. STRATCOM is working closely with the OSD to determine the requirements for just such a test range. This range will help us define effects in un-

derstandable terms, quantify systems' performance, and provide assurance that the elements of IO will achieve the desired effects while avoiding unintended consequences. We intend to develop a "test range" that can certify IO capabilities before we make them available as a legitimate alternative to other capabilities such as a kinetic option.

48. Senator BILL NELSON. Admiral Ellis, how would the larger test community be involved, including for example the Pentagon's Director of OT&E and could you please keep this subcommittee apprised of the status of this?

Admiral ELLIS. I anticipate that the Director, OT&E will be involved in those types of efforts. It is absolutely essential to validate and certify effects if we are going to offer them as a legitimate capability to the warfighter.

#### DEFINITION OF "PERSISTENT" SPACE-BASED RADAR

49. Senator BILL NELSON. Secretary Teets, Admiral Ellis, General Lord, and Admiral Cebrowski, according to Pentagon descriptions, the new SBR program will deliver "persistent" radar coverage of most of the globe. I'd like all of you to comment on what you believe the word "persistent" means. Is it the same as "continuous," and if not, what is the difference—and what is the minimum requirement for "persistence?"

Secretary TEETS. We define persistence as the ability to maintain long-term surveillance of items of interest in order to monitor, characterize, and track activities and events occurring around the globe. Our objective is to optimize the collection of information through dynamic tasking across multiple air/space sensors—taking advantage of the complimentary attributes of the systems—to have the right resources focused on the problem or threat at the right time.

Our definition of persistence is not the same as "continuous." The degree of persistence will vary depending on the situation, the nature of the threat or information need, and the timeliness required for action. In many instances, frequent revisits over denied or difficult terrain areas with space-based systems will provide the necessary degree of persistence. Tracking mobile theater ballistic missile launchers during combat operations will require a more continuous presence from a mixture of airborne, surface, and space-based sensors to obtain the degree of actionable information necessary to support decisionmakers.

SBR, as part of an integrated system of sensors, will be a major contributor in achieving global persistent surveillance.

Admiral ELLIS. Persistent is not synonymous with continuous. The definition of persistence within the SBR concept will be entirely dependent upon the complexity of the constellation. With each additional vehicle the frequency of coverage will likely increase; therefore, persistent will slide across the continuum toward continuous. But given mission needs and budgetary constraints, an effort to reach continuous will be cost prohibitive. That is why trade studies have been, and will continue to be, conducted throughout acquisition of the system.

General LORD. Persistent surveillance is the ability to monitor, track, characterize, report, and update at frequent intervals on specific activities at fixed locations, on moving objects, and changes occurring to the surface of the Earth. This definition is not synonymous with "continuous." The activity cycle of the target, the situation, and the action we want to take on the target determine the amount of persistence needed. For example, the rate at which we need to sample a missile test site preparing for a launch may be days; for a ship traversing the Mediterranean, it may be hours; and for a mobile theater ballistic missile carrying weapons of mass destruction (WMD), it may be 30 seconds. We look to achieve persistence through a mixture of integrating our surveillance and reconnaissance system designs and allowing these collection systems to trade off coverage of each other. In some cases, a SBR capability will provide both the deep access and the persistence to meet our goals, and sometimes our needs will require a more rapid revisit rate that only airborne sensors can provide. The surveillance provided by a SBR, in combination with other complementary space and airborne systems, could bring us much closer to realizing persistent surveillance.

Admiral CEBROWSKI. Persistent is not the same as continuous.

When dealing with elements of observation, persistence means having the capability to know what you need to know, when you need to know it, and with the fidelity necessary to draw the appropriate conclusions. You must be able to sense the discriminant or the phenomenology while it is there and while it is actionable. This requires matching the observation revisit rate with the time constant of the object to be observed.

Therefore, any measure of persistence is dependent on the activity or behavior being observed. For example, if you require information on a moving target, your ability to observe or sense that target (revisit rate) must be consistent with changes to its actionable state.

With a networked force it is also important to note that persistence needs to be measured in terms of a system of networked space, air, and surface assets. This networked or layered persistence, allows the advantages of each layer to be brought to bear ensuring a higher fidelity of actionable observations, while reducing the vulnerability to deception and denial.

#### FULL FUNDING FOR SPACE PROGRAMS

50. Senator BILL NELSON. Secretary Teets, at last year's hearing, I asked you why the new space policy you were implementing did not require, as a matter of policy, that space programs be fully funded to their estimated costs over the 5-year budget horizon used by the Pentagon. I pointed out then that your policy is different than the policy for almost every other major Pentagon program. Other major programs are required to be fully funded by Milestone B, to try to avoid the type of cost growth problems we keep seeing in space programs. You didn't answer my question last year, yet I understand the policy has remained the same. So I'd like to ask you again: Why have you implemented a specific policy which does not require that space programs be fully funded? Doesn't such a policy actually increase the chances for space program cost growth?

Secretary TEETS. The policy does require us to fully fund space programs. The National Security Space Acquisition Policy 03-01 states that "The DOD Space Milestone Decision Authority shall determine the appropriate point at which to fully fund a DOD Space Major Defense Acquisition Program—generally when a system concept and design have been selected, a System Program Director/Program Manager has been assigned, capability needs have been approved and system-level development is ready to begin." This provides us some flexibility as to when this is required but it typically occurs at the entry to Phase B, risk reduction and design development.

#### MINUTEMAN III ICBMS

51. Senator BILL NELSON. Admiral Ellis, at the hearing there was some confusion about a question I asked with respect to the Minuteman III ICBMs. The Nuclear Posture Review and the Moscow Treaty achieve the bulk of the reductions in deployed nuclear warheads by retiring the Peacekeeper and de-MIRVing the Minuteman III ICBMs—having one warhead on each Minuteman III rather than multiple warheads. There was a recent press report that suggested that the decision to have one warhead on each of the 500 Minuteman III ICBMs was being reconsidered. Is this true? Is there a plan to retain MIRVed Minuteman IIIs?

Admiral ELLIS. No, I am not aware of any such plan.

[Whereupon, at 4:45 p.m., the subcommittee adjourned.]

**DEPARTMENT OF DEFENSE AUTHORIZATION  
FOR APPROPRIATIONS FOR FISCAL YEAR  
2005**

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**WEDNESDAY, APRIL 7, 2004**

U.S. SENATE,  
SUBCOMMITTEE ON STRATEGIC FORCES,  
COMMITTEE ON ARMED SERVICES,  
*Washington, DC.*

**DEFENSE INTELLIGENCE PROGRAMS AND LESSONS  
LEARNED IN RECENT MILITARY OPERATIONS**

The subcommittee met, pursuant to notice, at 10:03 a.m. in room SR-222, Russell Senate Office Building, Senator Wayne Allard (chairman of the subcommittee) presiding.

Committee members present: Senators Warner, Allard, Reed, Bill Nelson, E. Benjamin Nelson, and Dayton.

Majority staff members present: Charles A. Alsup, professional staff member; Brian R. Green, professional staff member; and Gregory R. Kiley, professional staff member.

Minority staff members present: Kenneth M. Crosswalt, professional staff member; and Creighton Greene, professional staff member.

Staff assistants present: Michael N. Berger and Bridget E. Ward.

Committee members' assistants present: Elizabeth King and Neil D. Campbell, assistants to Senator Reed; and Peter A. Contostavlos and Caroline Tess, assistants to Senator Bill Nelson.

**OPENING STATEMENT OF SENATOR WAYNE ALLARD,  
CHAIRMAN**

Senator ALLARD. The Strategic Forces Subcommittee of the Senate Armed Services Committee will come to order. Today, this is a hearing on defense intelligence programs and intelligence lessons learned in recent military operations.

The subcommittee meets today to receive testimony on defense intelligence programs and tactical and operational intelligence lessons learned in recent military operations. Intelligence has always been an important part of military operations, but the criticality of intelligence to precision targeting and decisive military operations has clearly increased. The Department of Defense's (DOD) plans for transforming its warfighting capabilities are grounded in information dominance—accurate, timely intelligence. Understanding our complex defense intelligence system, its capabilities, and future requirements is of great importance to this subcommittee.



We welcome our witnesses. We have with us here this morning Dr. Steve Cambone, Under Secretary of Defense for Intelligence (USDI); Lieutenant General Keith Alexander, G-2 of the Army; Rear Admiral Richard Porterfield, Director of Naval Intelligence; Major General Ron Sams, Director for Intelligence, Surveillance, and Reconnaissance for the Air Force; Mike Decker, Director of Intelligence for the Marine Corps; and Brigadier General Don Wurster, Director of Intelligence and Information Operations for Special Operations Command.

It would be impossible to assemble a more qualified group to comment on our tactical and operational intelligence capabilities, and we look forward to your testimony.

As an administrative note, we will have opening statements and a round of questions in open session, and then move to a closed session to address important classified items.

Clearly, intelligence has played a central role in recent combat operations and stability operations in Iraq and Afghanistan, as well as in the ongoing global war against terrorism. It is an intelligence effort against new types of efforts that differ greatly from the traditional threats of the 20th century. Our Intelligence Community has had to adjust to these new threats, and they've done an admirable job.

We've all been thankful for the successes of our Armed Forces in these recent military operations. While much will be debated in the months and years ahead about tactics and weapons systems, all of our forces are dependent on timely, accurate information to succeed. Indeed, one of the central tenets of our national military strategy is information dominance. The intelligence, surveillance, and reconnaissance (ISR) assets available to the theater and subordinate commanders appear to have done a remarkable job in delivering that information. While much recent attention has been focused on the pre-war strategic intelligence available to national decisionmakers, I feel it's important for the American people to know that the military intelligence assets of the DOD have served the Armed Forces and the Nation well.

Even when things go well, however, we must not be complacent. I want our witnesses to address not only what is done well, but also where we need to do better. Clearly, we have a very capable system, but it is your job to make it better, and the job of Congress to help you.

The National Defense Authorization Act for Fiscal Year 2003 established the position of Under Secretary of Defense for Intelligence. It is clear that each of the military Services and the defense intelligence agencies are very capable and composed of dedicated professionals. It is equally clear that this defense intelligence community is a complex enterprise that requires dedication, consistent, high-level guidance, and a unifying vision to ensure the best-possible support to the soldier on the battlefield, the generals guiding operations, and the strategic decisionmakers.

Secretary Cambone has had 13 months to study this challenge, and we look forward to his views on the current state of defense intelligence and the way ahead. One year ago, this subcommittee held a related hearing to evaluate how well the ISR assets of the

military Services were combined and integrated together to support joint warfighters.

Our purpose here today is to build on the insights gained last year and on the insights gained through the experience of a challenging year of military operations, to better understand this complex enterprise and determine that the investments we are making are adequate, and, if, in fact, we are investing in the right capabilities. Furthermore, we want to understand if the capabilities that are being developed in each of the Services not only support the unique core requirements of that Service, but can be fully integrated into a system that effectively supports joint warfighters and our national defense decisionmakers.

Current capabilities have proved quite adaptable over time. Much of the credit for that goes to the amazing young service men and women, who use American initiative and ingenuity to figure out some very unique ways to maximize the capabilities of these ISR systems. Such ingenuity is critical, but we must also ensure that we're not asking too much, that we are developing the capabilities that can focus on the really challenging threats of the future, such as transnational terrorists and proliferation of weapons of mass destruction.

Experts suggest that a persistent, all-weather, 24-hour capability, delivering high volumes of data and queued by a variety of other integrated sensors, is essential. That seems to make sense, but true persistence in analytical tools that help analysts find the key pieces of information has been elusive. I hope each of our witnesses will address the issue of persistent surveillance, how we achieve it, and how we recognize the important nuggets of information quickly when that information is collected so that we can react quickly, with confidence. Such an integrated system is clearly the first line of defense, not only in winning future battles, but in stopping threats to our homeland and our national security interests before they fully materialize.

I will be brief, as it is more important that we proceed on to the testimony of Secretary Cambone and our military intelligence chiefs. I look forward to hearing your testimony on the performance of our intelligence system in supporting our warfighters. I also am anxious to hear how much each of you anticipates working better together to ensure we have a well-integrated, coordinated effort. I am also most interested in your view of the future. What do we need to be prepared for? What gaps or challenges may be anticipated? What can we, Congress, do to help?

As we consider the fiscal year 2005 budget request, we must be mindful of the critical role intelligence plays in our current and future military operations, and how timely connected our intelligence assets and weapons have become. This is clearly the future of warfare, and we must ensure that our defense intelligence capabilities and the larger Intelligence Community continue to be the best in the world.

Again, I welcome our witnesses, and thank you for your service.  
Senator Nelson.

Senator BEN NELSON. Thank you—

Senator ALLARD. Oh, wrong Nelson. Let me catch Senator Bill Nelson, from Florida, and then, Senator Ben Nelson, we'll give you an opportunity to make your comments.

Senator Nelson.

Senator BILL NELSON. Would you like me to defer?

Senator BEN NELSON. No, no, no, I defer to you. [Laughter.]

Senator BILL NELSON. We could go back and talk about some of our rivalries between the University of Nebraska and the University of Florida if you'd like.

Senator BEN NELSON. That was before we gave up football for a while.

Senator BILL NELSON. That's correct. [Laughter.]

#### STATEMENT OF SENATOR BILL NELSON

Senator BILL NELSON. Anyone who has worn the uniform of this country knows the very difficult situation that we are facing on this very day, especially where there is an indigenous population that is starting to rise up. So, in the course of this hearing, we want to find out more how we can help those very brave men and women who are out there carrying on the fight.

This hearing is going to give us an opportunity to focus on how we collect data about the enemy and the environment, and how we turn that data into information, and then how we get that information to the right people at the right time.

In the past, some have talked about sensor-to-shooter integration, or such concepts as "dominant battlefield awareness," while others have been espousing a concept called "horizontal integration." Whatever the words are, it's clear that we have to be able to fight smarter, not just on future battlefields, but on this present battlefield, given our reduced force structure and our desire to minimize casualties. So the programs and systems that we will be discussing in this subcommittee hearing are the foundation upon which any such concept will have to be based. What we don't cover here in the open session, I'm looking forward to getting into, and no mumbo-jumbo, when we get into the closed session.

Thank you.

Senator ALLARD. Senator Ben Nelson, from Nebraska.

Senator BEN NELSON. Thank you, Mr. Chairman and Ranking Member. I want to thank you for scheduling this hearing today. I don't think we could overstate the importance of how we wed together the civilian and military leadership responsibility for collecting and disseminating intelligence within the operational and intelligence communities.

I want to thank each of you, gentlemen, for being here today, both for your dedication and for your efforts to be able to provide the kind of coordination that's going to be essential in the days ahead.

Last week, Admiral Ellis, Commander of the U.S. Strategic Command (USSTRATCOM), testified that the DOD needs to enhance its ISR capabilities to better locate hidden targets, which could be camouflaged or protected by robust air defenses. He went on to describe the challenges that they face between the operational world and the various elements that contribute so effectively to intelligence collection, and how they bring those together in a collabo-

rative way, particularly as the next generation of ISR platforms begin to be more rigorously defined technically to include space-based radars (SBRs) and the like.

A concern that we have all had relating to intelligence and the lack of intelligence capabilities in the past is a matter of public record, of politics, and, I think, of public policy, as well. I am hopeful that today, as we look at what we can do operationally, that our focus will be on the technical side, that it will be on the side of enhancing our capabilities to deal with information on the ground, information that can be human intelligence (HUMINT), as well as technical in nature.

Clearly, with what's going on in Iraq today, there are those who could suggest that perhaps our intelligence breakdown did not prepare us for the potential violence that we're dealing with today. Intelligence can help us only so far. But we have to continue to increase it, because I do believe that many of the challenges that we've encountered could have been avoided. But, more importantly, there are challenges ahead that I think we do need to avoid, and we're looking at you as to how this could come about. Clearly, the ball is in your court to be able to tell us what's going on, and to tell us what will be going on, to enhance our collaboration and use of intelligence.

I thank you, Mr. Chairman. I am looking forward to your testimony.

Senator ALLARD. I'll now call on the Honorable Steven A. Cambone, Under Secretary of Defense for Intelligence.

**STATEMENT OF HON. STEPHEN A. CAMBONE, UNDER  
SECRETARY OF DEFENSE FOR INTELLIGENCE**

Dr. CAMBONE. Thank you, Mr. Chairman, members of the subcommittee. I do appreciate the opportunity to come here 13 months, almost to the day, since the Senate confirmed my appointment, and to first give you an idea of what we have been doing over those 13 months as they relate to some of the issues raised in the opening statements, then take a minute to talk about some work being done with the combatant commanders to improve their capabilities, and then to give you a bit of insight into some of our thinking about how defense intelligence overall may evolve in the coming months and years to meet the changing environment in which we live.

So, if I may, please. A year ago I told this committee and others that there were three major issues that we needed to address. One was to "take stock," as we called it, of the title 10 capabilities and responsibilities of our service intelligence organizations. The gentlemen who are with me here today worked very closely with my staff, and have put together a fairly substantial brief, which, Mr. Chairman, I would offer to you and your staff as a summary of the work that was done on those responsibilities and capabilities. The bottom line of that effort was to say that we needed, collectively, to pay more attention to both our people and to the changing operational environment in which the Intelligence Community is going to have to work.

The second effort that we undertook was to review our HUMINT capability within the DOD, and let me leave that as a heading, for the moment, and return to it in a few minutes.

Likewise, I would like to return to the third heading, which was the support that we could give to our combatant commanders. By that, I mean we, early, concluded that the relationship between intelligence and operations was growing closer, so close, in fact, that it was beginning to become increasingly difficult to separate the two; and, therefore, we've had to change the way in which we thought about our support to our combatant commanders. I'll say a few more words about that in a few moments.

One of the first things we did, however, was sit down to review the basis of the work that is done in the DOD on intelligence. A first cut through the many directives and instructions that exist within the DOD to guide our work turned up 30 main directives that affect the work of the Intelligence Community within the DOD. Some of them date back to the 1970s, a good number of them are from the 1980s, and the balance from the 1990s. We are in the process of trying to reconcile those directives, and update them in light of the changing environment.

The second thing I did was ask my people to collect a list of the committees, boards, working groups, and other types of organizations within the DOD that claim to have some responsibility for intelligence or for the supporting capabilities, like communications. At last count, that list is 14 pages long, which tells you something about the need to clean up our internal processes to assure that we have more people who are capable of saying yes to initiatives and being able to move more quickly, and fewer people who can say no, which is essentially what 14 pages of boards, committees, and working groups amount to.

We have undertaken an effort to establish, finally, the Defense Career Intelligence Personnel System program. That is a defense intelligence personnel system that is designed to give those people who are working in defense intelligence a proper personnel system for their career development. We have, in the past year, taken and made the implementation decision necessary to bring that program forward.

Second, we are in the latest stages of transferring our Defense Security Service (DSS) and background investigation capabilities over to the Office of Personnel Management (OPM), which should, we hope, speed up the process by which clearances are granted and adjudications take place.

Third, we have undertaken a review of the Milestone Decision Authority (MDA) for the National Security Agency (NSA). We hold our first meeting tomorrow to review the status of the major programs within NSA, and our desire and hope is that we will review those programs, take whatever corrective actions are appropriate, along with the Director of NSA, and then return here to Congress to see if we cannot persuade you that the proper changes have taken place and that that MDA should be returned to the Director of NSA.

Fourth, in the area of information sharing—this issue was raised or touched on in the opening statements between and among members of the Intelligence Community, between that community and the operating forces of the United States Armed Forces, and between and among those two entities and our Coalition partners, is a subject of a great deal of work and effort at the moment. There

are a number of circumstances which, if they did not occur in the context of ongoing military operations, would be humorous in the way in which information flows seem to be interrupted and not made as easy as they should be. So we have taken on the task of making certain that that information can flow much more smoothly and much more rapidly in the community and between the community and the operating forces.

Related to that—and, Senator Nelson, you touched on it—horizontal integration has been a major effort of my office. We have been teamed with the Director of Central Intelligence's (DCI) staff and his Community Management Staff (CMS) in an effort to bring the notion of being able to move information easily between and among the users, and getting the information to the user in a format that is best suited to their needs. We have been working quite diligently, and I will tell you—and, Senator, without any prevarication—we haven't gotten to the bottom of it yet. It is a difficult subject. We know how to do it technically. What we haven't figured out how to do yet is to do it in a way that the information can be—we can have assurance that the information will be protected both in its transit across the networks, and that the user will have the appropriate means for protecting the information they receive. That is a very difficult problem. It crosses the "boundary," if you will, between the Secretary of Defense (SECDEF) and the DCI and their relative responsibilities for that information. We're working hard, and I am hopeful that we are going to come to a conclusion with respect to that capability.

Sixth, mentioned in the opening statements, was persistent surveillance. We have put an enormous amount of effort into persistent surveillance. If I may just take a moment here, this subject is most frequently associated with platforms in space, and particularly with the space-based radar. I will be the first to say that such a system would go a long way toward helping us to provide the kind of persistence that I believe we are going to need in the future. But space systems and the space-based radar are not the definition of that capability. It needs to be integrated with those assets that fly, those that are on the ground, and, indeed, with our HUMINT capabilities. Together, they form a complex of collection capability which can yield the kind of persistence we will require across the wide range of activity in which we are going to be engaged. Indeed, the information collected is useless without having a basis for moving that information—hence, the emphasis on horizontal integration; and, second, having an analytic cadre that is capable of analyzing that data and extracting knowledge from it.

Therefore, if I may move on to the last point I wanted to raise here, the SECDEF and the DCI have proposed to Congress a substantial increase in the intelligence budgets for the next 5 or 6 years. We can discuss those in the closed session, if you wish. But I want to underscore here that a great deal of that increased funding is aimed at improving the analytic capability of the community, both the defense side of the community as well as the national side.

So where are we now? If those are some of the major initiatives and some of the things we've touched on the last year, where are we?

I mentioned a few moments ago that we had begun to look at our intelligence support to the combatant commanders. We undertook a major effort to support the transition from V Corps to the III Corps in Iraq, and the stand-up of the Combined Joint Task Force-7 (CJTF-7). We continue to be actively engaged with General Sanchez and General Fast, who is the J-2, in assisting in the development of the intelligence architecture there, in providing counterintelligence support, in assisting the Army and others with the transition, particularly their tactical HUMINT teams, and the like. General Alexander, who is here with me today, can give you a great deal of information on that effort.

But I would say that from General Abizaid's point of view, he has told me that the effort to improve capabilities within Iraq, at the operational and tactical level, has been so successful that he has asked us to undertake a similar effort with his architecture in Afghanistan, and we have people engaged in that today.

In addition, with respect to support to the combatant commanders, we have introduced a new concept, which we are calling "intelligence campaign planning." For those of you who are familiar with the way in which the military plans, there is a notion of starting in a pre-conflict environment, moving into a crisis, into combat operations, and, from there, into post-combat operations. You can look at any plan that's been laid down, and you will see the threads that run through those phases of operations that affect logistics, supply, and the like. We have come to the conclusion that we have to have a thread for intelligence support, and that we have to have a notion of how intelligence is going to be applied, how it will be effective in not just closing the "kill chain," but in actually helping the combatant commander to understand what effects he is having on his adversary, on their attitudes prior to a conflict, their attitudes during the crisis, how they are reacting to the combat maneuvers of the combatant commander, and, indeed, what is to be expected in a post-hostilities environment.

This notion of intelligence campaign planning is getting legs. General LaPorte, the commander in Korea, has a pilot program underway to see how we can lay in an intelligence campaign plan for his deliberate plan for the defense of South Korea.

Special Operations Command, Commander General Brown, has taken elements of the idea and has begun to think of ways that he may apply it.

Admiral Giambastiani, who is the combatant commander for Joint Forces Command, has undertaken, with my office, an effort to develop, essentially, a joint-intelligence doctrine, a doctrine for the use of intelligence in the coming environment. We believe that that will be an enormously important development in support not just of an intelligence campaign plan, but campaign planning overall.

We have made significant strides in the area of ISR by giving to the USSTRATCOM Commander, Admiral Ellis, who was mentioned here this morning, the mission of supporting, on a global basis, the management of our ISR assets and providing the kind of combatant-commander advice that is essential to the proper use of what is, in fact, a weapons system. ISR platforms and the associated command-and-control and the individuals who make it up are

a weapons system, and we should not forget that. We have, as I say, given to a combatant commander the responsibility for managing that weapons system on a global basis.

Lastly, Special Operations Command (SOF) has been designated by the SECDEF as a supported commander for the purposes of planning global operations in the war on terror, and that implies a level of intelligence support, which, when we go into closed session, I'm sure General Wurster would be more than happy to outline for you.

I said that we had looked at HUMINT reform, and we are in the process of bringing together our thoughts on that subject. But as we looked at it, we concluded that the problems, such as they are within our defense community, are but a part of a larger mosaic of defense intelligence as a whole, and so we have pulled together a number of proposals, which, I must tell you, we have yet to brief to the Secretary or to the DCI. So we are very much in the early stages.

But I would like to touch on two or three things which have emerged from our work, and that is that, first, I mentioned the spectrum of activity in which a combatant commander is engaged—pre-crisis and conflict, into the operational phase, and then into the post-operations environment. If one sat down and said, “In each of those phases of activity, what are the kinds of intelligence support requirements that are needed,” you would make a fairly long list, but it would be a fairly orderly list. I think what you'd discover is that the elements of defense intelligence are all necessary to be brought to bear in order to provide the intelligence needed.

What are those elements? They include HUMINT, which we have just talked about, measurements and signals intelligence (MASINT), counterintelligence, a very healthy analytic capability, as well as the integration of technical collection data, and, often forgotten, the role for the defense attaches, who play a very important role in their respective countries in supporting the overt-collection of information which is useful for intelligence purposes.

What we concluded is that we have to find a way to take those various disciplines and roll them into an integrated capability, such that they are a more operationally capable element at the disposal both of the SECDEF and of the combatant commanders. We think if we move in that direction, which is toward a more operational focus, we're going to require, in the end, different organizational structures within the Defense Intelligence Agency (DIA). Proposals are being drawn up for such changes.

We are going to have to sharpen the relationship with the combat support agencies—NSA and National Geospatial-Intelligence Agency (NGA), in particular—and we are going to have to give to them a much better definition of the needs of our operating forces for intelligence, in terms of the quantity and the quality, as well as the timeliness of that information.

We are clearly going to have to have an enhanced relationship with the service providers, because let's not forget that the majority of the defense intelligence capability resides not in the DIA, but in the Services that you see represented here. So we're going to have to be certain that we establish the kind of relationships with the



Services that will permit them to provide the expertise that's going to be needed in the defense intelligence community.

We're going to have to give a much more precise definition of what our defense intelligence support requirements are going to be relative to foreign intelligence. Here let me just make a distinction for the moment. A dysfunction is often made between national and military intelligence which I think is not quite the right distinction. I think the distinction is between military intelligence that is needed for the operating forces that plan and execute, over against the foreign intelligence which is the context in which those forces will operate. Foreign intelligence is clearly the purview of the DCI, and we have, I would argue, been remiss in the DOD in not providing to him and to his staff a much better definition of what our foreign intelligence requirements are and may be in the coming years. If we make the reforms internal to the DOD, we should be able to provide a much better definition of those support requirements.

Finally, if we're going to make the defense intelligence capabilities more robust and more operationally focused, we need to continue the dialogue that has been ongoing between the DCI and the SECDEF on the question of how best to array those assets, both over time and within the battle space where our forces may be engaged.

So let me conclude here, then, sir. What I've just sketched for you, we are getting ready to bring forward in the next few weeks to our respective leadership. Once we've done that, we will be able to come back to this committee and others to describe the types of changes we think we may need to make. We'd like to, at that point, consult with you and your staff on some of the particular issues that may be of concern to you. But, in the end, we are on a schedule to have these kinds of reforms reflected in the fiscal year 2006 budget bill, which will take place toward the end of the year.

Let me close with one other item of interest. This committee has expressed a concern with what is called the Intelligence, Surveillance, and Reconnaissance Council. That council has met for the first time 2 weeks ago. It has laid out an agenda of work for the coming weeks and months. It will be a vehicle by which we get to some of the issues that have been raised in the opening statements here this morning; specifically, how is it that we begin to lash together the various service capabilities so that we do, in fact, have a joint capability? How do we take that joint capability and better associate it with the national capabilities, and assure the flow of information from the one community to the other? Then, third, how do we look to what we need for the future? We do need to have a much better description of the range of capability that we will require, and to provide to you a sense of how, in the end, we think we can fund that capability in the coming years.

Mr. Chairman, that's a precis of the statement that I have prepared for your subcommittee and for the record. I would ask that that prepared statement be submitted for the record, sir, and that of my colleagues. With that, I'm happy to take any questions you may have.

[The prepared statement of Secretary Cambone follows:]

## PREPARED STATEMENT BY HON. STEPHEN A. CAMBONE

## INTRODUCTION

Thank you, Mr. Chairman, and members of the subcommittee for inviting me here today. I appreciate the interest the subcommittee has in the stand up of the USD(I), which occurred a little over a year ago. I will briefly review the roles and missions of my office as well as the DOD's goals in guiding the Defense Intelligence Community. I would also like to provide you an overview of the tactical and operational intelligence capabilities and requirements of the DOD, as well as how the military intelligence capabilities of the DOD can best be transformed to support combatant commanders and subordinate warfighting commands. I would also like to briefly review some steps we are taking to help determine future DOD intelligence requirements as well as what we are doing to acquire these capabilities—which will be critical to success against current and future threats. I will also provide some comments on the role of the Intelligence, Surveillance, and Reconnaissance Integration Council as well as my assessment of the performance of the DOD ISR system, including the supporting communications architecture during recent military operations, the degree of integration that has been achieved, the ability of this system to support the peacetime and contingency requirements of all combatant commanders, lessons learned at the tactical, operational and strategic levels of intelligence support, and any significant changes or reforms to DOD intelligence that I am implementing or considering. Finally, I will discuss my Horizontal Integration efforts and how we are working with the Director of Central Intelligence to move forward in an area that will play an important role in enhancing how analysts can more effectively manage information and find the critical knowledge decisionmakers need.

## CURRENT ENVIRONMENT

We are facing a turbulent and volatile world. It is populated by a number of highly adaptive adversaries including terrorist networks that operate both within the confines of civil society and in ungoverned areas. It is a world in which international political-military affairs continue to evolve. As a result of these and other ongoing developments, it is impossible to predict with confidence what nation or entity could pose threats in 5, 10, or 20 years to the United States or to our friends and allies. This places a heavy burden on intelligence. Detering, and if necessary confronting and defeating future adversaries, some of whom may emerge only in the fullness of time, will require detailed understanding of their goals, motivations, history, networks, and relationships that is developed over a long period of time and to a level of detail that is far deeper than we can reach today.

## DOD'S SIX CRITICAL GOALS

If the DOD's intelligence components are to successfully fulfill their roles in the coming decades both as part of the Intelligence Community (IC) and in their roles in support of the operations of the joint force, we must modernize and transform that capability.

The SECDEF identified six critical operational goals in the 2001 Quadrennial Defense Review (QDR) that provide the focus for the DOD's overarching transformation efforts. They are:

- (1) Protection of critical bases and defeating chemical, biological, radiological, and nuclear weapons;
- (2) Projecting and sustaining forces in anti-access environments;
- (3) Denying enemy sanctuary;
- (4) Leveraging information technology;
- (5) Assuring information systems and conducting information operations; and
- (6) Enhancing space capabilities.

Intelligence has a major contribution to make in meeting these goals. Our intelligence capability is essential to military success. It is a key enabler of how and when our power is applied. Intelligence capabilities allow military commanders to prepare appropriately, and when ordered by the President, to close rapidly with the adversary, to swiftly defeat the enemy, and to support follow-on security and stability operations.

In support of the DOD's goals and to guide us in the transformation effort we have established the following goals:

*Defense Intelligence Goals To Achieve Intelligence Transformation*

- (1) Know something of intelligence value about everything of interest to us, all the time: Current collection capabilities predominantly reflect a Cold War-era recon-

naissance paradigm—one of periodic looks and sampling. Persistent surveillance (the ability to monitor, track, characterize, report and update at short intervals on specific activities at a fixed location, moving objects such as trains, convoys or military movements, as well as changes occurring to the surface of the earth) is essential for planners, operators, and policy makers. We need to evaluate existing and proposed intelligence programs e.g., technical collection, HUMINT, etc. in light of the goal of persistent surveillance. We need to seek out and develop long-dwell sensors and pursue other emerging technology breakthroughs in sensor or platform capability. We must also develop technology to permit rapid data exploitation by users who need it most urgently. The combination of these improvements will enable us to achieve the goal of persistent surveillance.

(2) Develop reliable strategic warning: Competence in strategic warning across the full spectrum of potential threats is critical to support the full range of political, economic, and military tools that we have. For DOD in particular, strategic warning is essential to provide the time needed to re-fashion our forces and adjust their posture in a timely, efficient, and effective way to dissuade adversaries, deter foes and, when necessary, defeat enemies. The effort is complicated by the reality that the warning we seek in the future is likely to be against threats that we may not be able to imagine today. Averting crises is nearly always preferable to managing them.

(3) Pursue agile and adaptable intelligence collection and analysis capability: Our intelligence capability needs to be less dependent on Kepler's Laws, Bernoulli effects (that is, satellites and aircraft in fixed orbits), and linear processes (like Tasking, Processing, Exploitation and Dissemination) (TPED)), and more prepared to respond to surprise. We need to expect the unexpected. The tremendous amount of information available to collectors and analysts requires a horizontally-integrated, network-centric environment less constrained by bandwidth limitations. Today's transforming military and intelligence environment demands rapid conversion of data to information and information into actionable knowledge. Interoperability at the data level, through the use of common standards and content tagging, will further the horizontal integration of information from all sources—not just intelligence—at all levels of classification. The net result will be a more efficient use of our collection assets and a more effective synergistic use of our intelligence analysts.

(4) Provide an intelligence capability that supports a national strategy of forward deterrence and agility: Deterring future adversaries will require a detailed understanding of their goals, motivations, history, networks, relationships, and all the dimensions of human political behavior, on a scale that is broader and deeper than today's. This requires a regeneration of our HUMINT and close access capabilities and an overhaul of our analytic processes and culture. An "intelligence reachback" capability is needed to permit deployment of platforms/sensors/shooters to forward operational areas without the need to deploy analytic cells and infrastructure into theater. Reachback communications from our intelligence platforms can make this collected intelligence data readily available to our military forces and to the Intelligence Community through shared communications and archives. It is now DOD policy that the national intelligence agencies and service intelligence centers have broad access to collected theater intelligence data along with the authority to store and distribute. This will facilitate the horizontal integration of ISR information making the analytical power available to assist where needed without extended lead times and delays.

(5) Ensure military forces receive intelligence in a fashion and in a format that enables them to swiftly defeat an adversary: We need intelligence that enables us to act quickly, secretly, and effectively—intelligence that enables us to anticipate our adversary's actions and anticipate the needs of our commanders and warfighters. We then need to provide predictive intelligence that stays ahead of the battle. This implies continuous preparation of the battle space, whether it is on the surface, under the seas, in the air, in space, or in cyber-space. This includes having policies and procedures to deliver nearly instantaneously critical data from sensitive sources directly to the warfighter so that prompt action can be taken based on that data. Intelligence support must extend to the post-conflict, security and stabilization phase of a campaign as well.

(6) Ensure knowledgeable adversaries do not compromise our secrets: This will require obtaining robust capabilities to acquire an adversary's secrets in ways that cannot be comprehended, even as we ensure that our own capabilities are not vulnerable. Traditionally, this goal has been met through defensive measures. In the world of today and tomorrow that will not be enough. An active offensive counter-intelligence effort is needed to complement defensive measures. To protect our plans, critical infrastructure, and research technology while at the same time countering espionage, we will need to learn of an adversary's intent and capability in

advance and take measures to deny and disrupt those efforts. An offensive posture will require investment in intelligence capabilities that allow us to gather exquisite knowledge of the adversary, but without his knowledge, that is integrated with and validated by sensitive HUMINT sources, and explained by trained analysts.

In order to support the needs of both the policymakers and the warfighters, the Office of USD(I) continues to evaluate Defense intelligence plans and programs and to make resource decisions relative to the six primary Defense Intelligence goals as well as lessons learned from recent operations. The Office of the Under Secretary of Defense (OUSDI) coordinates with the DCI's Community Management Staff (CMS) to ensure continuity and consistency across the National Foreign Intelligence Program (NFIP), the Joint Military Intelligence Program (JMIP) and the Tactical Intelligence and Related Activities (TIARA) programs.

#### *ISR Organizational Transformation*

ISR organization and doctrine—whether in support of political or military leaders—has not been systematically revised for two generations. ISR activities are burdened by legacy policies and stove-piped activities that are de-conflicted, but not integrated either within DOD or between DOD and the IC. We are taking measures to create a modern ISR capability.

#### *Unified Command Plan Change—Global ISR*

The organizational transformation of our ISR forces is already underway. The means by which ISR information was produced and used in Operations Enduring Freedom (OEF) and Iraqi Freedom (OIF) is just the beginning of what will eventually become a transformational intelligence capability. Cooperation among defense and non-defense agencies was outstanding during these conflicts and resulted in a number of innovative applications of intelligence. Fused analysis of data provided by differing disciplines produced new kinds of information. Close integration of intelligence and operations was the norm, to the point where the two were sometimes indistinguishable. Speed with which critical information was supplied to both analysts and warfighters made the difference in a number of critical situations. New tactics, techniques, and procedures for collecting, analyzing, and disseminating intelligence made contributions to the successful completion of those campaigns. We must codify these lessons by updating how our ISR forces are organized and fight.

USSTRATCOM, in addition to its Global Strike responsibilities, has been assigned responsibility for global ISR. This is in keeping with our continuing effort to make intelligence and operations integral to each other and capable of performing within the timelines of the commander's decisionmaking cycle. We know that if intelligence lags behind operational and command decisionmaking windows it is not actionable. Just as a maneuver formation on the ground, at sea or in the air is a warfighting system, so is intelligence. By making ISR the responsibility of a functional combatant commander we gain synergy and perspective among warfighting systems.

In addition to the assignment of the global ISR the mission to USSTRATCOM, I have issued guidance for all theater-collected airborne, shipboard, and ground intelligence data to be posted for discovery and access across the Global Information Grid in a timely manner. The chairman's staff is converting this guidance to an instruction. I believe this is the first time such direction has been given. Not only does it permit access to the data at all levels within a command and between commands, it also opens the way for sharing this data with the larger IC, which I believe is a first as well.

We are also working closely with USSTRATCOM, the DCI's CMS, the Combat Support Agencies (CSA) and the Joint Staff on proposals to operationalize our coordination between and among organizations to maximize the return on DOD and IC collection.

#### *ISR Integration Council*

The ISR Integration Council, under my direction, will be the vehicle the Department uses to connect Defense ISR programs and the Global ISR applications and capabilities being administered by USSTRATCOM. The objective of the ISR Integration Council will be to oversee DOD's fundamental goals in achieving an integrated ISR capability. It will provide leadership for ISR capability transformation, overseeing development of an investment strategy for achieving integration of DOD's ISR capabilities that ensures effective sustainment of needed tactical and operational efforts and efficient acquisition of transformational ISR capabilities. The ISR Council's strategy will allow rationalization of ISR investments focusing on identification of critical ISR integration issues, materiel and non-materiel. It will enable synchronization of Service and Agency programs, resulting in better integration of investment across the full spectrum of ISR systems—operated by the Services and the CSAs.

To guide the Council in its deliberations and to institutionalize its products, we are developing an ISR Integration Roadmap. This roadmap will be a broad document that provides guidelines for future capabilities, articulates the DOD's fundamental ISR goals, establishes the boundaries of the trade spaces within which the DOD's ISR investment strategy will be built, and identifies the options for funding. It will span the entire range of Defense ISR, including space, air, maritime and ground systems, as well as HUMINT and emerging disciplines. The roadmap will also address key external issues/systems that impact Defense intelligence, such as the Transformational Communications Architecture, to enable an understanding of how issues in those foundational capabilities will affect the ability of Defense ISR to transform.

#### *ISR Investment Transformation*

The DOD is strengthening our intelligence capabilities by transforming our ISR processes, procedures, and systems. We must transform if we are to succeed in protecting our homeland and in achieving and ensuring peace abroad. The DOD is currently engaged in transformational ISR investments to bolster integrated ISR capabilities. Investments made in collection systems a generation ago are being re-evaluated. Known adversaries, arrayed in large formations, operating in known locations, have given way to a new combination of potential threats who focus their efforts on denying us use of those capabilities we rely upon most.

#### *ISR Communications Network Investment*

ISR collection must be coupled to a process that allows the data collected to be accessed by the user—the analyst or the military operator. Toward this end, beginning in fiscal year 2003 substantial investment has been made in laser satellite communications, the expansion of the Global Information Grid, the creation of a Distributed Common Ground System (DCGS), and joint command and control systems. These, in turn, are being fashioned into a networked operating environment both the Defense and IC share. As this capability comes on line, the need for “direct downlinks” (and the bandwidth that it consumes in theater) will decline as “reachback,” both on and through the intelligence network, takes hold.

#### *ISR Interoperability Investment*

The DOD continues to increase real-time networking of ISR systems, improve access to ISR information by weapons platforms, and increase interoperability among ISR systems, allowing seamless integration of collected sensor data into the joint and national environment. The DCGS is the DOD's overarching family of interconnected systems for posting, processing, exploiting, and updating ISR information. Many ISR assets are already an element of, or have a major interface with, the DCGS. DCGS is also the DOD's “hub” to effectively implement the information sharing relationships between the warfighters, the Service intelligence analysts, and the various intelligence agencies.

A key feature of DCGS is that it's constructed in such a way that the data is separated from the Service applications used to employ the data. Each Service—or by extension agency or command—can at its discretion or by direction of higher authority employ the same applications. This is especially important in a joint operating environment. But, for other Service, agency or command-specific activity, the users are free to assemble and present the data in a manner most appropriate to its need. In other words, we have avoided “one size fits all” in favor of the ability to create a user defined operating picture on demand.

Another important feature of DCGS is the potential to support integrated mission management by allowing all available data to be accessed by any interested user. This could reduce the overall demand for ISR collection assets by eliminating unnecessary duplication of effort and maximizing the processing of the total collected data.

#### *ISR Platform and Sensor Investment*

The DOD's ISR ground, naval, and airborne platforms have been heavily employed since the start of the global war on terrorism. These systems provided a significant portion of the theater and tactical intelligence information during OIF and continuing operations in Afghanistan, enabling rapid precision strikes and an unprecedented speed of advance by our ground forces. These ISR platforms remain the primary “eyes and ears” of our deployed forces. This administration has strongly supported programmed budgets and supplemental requests that have funded numerous improvements to ISR systems to enhance our existing capabilities.

Among the investments made in newer platforms or sensors, DOD is fielding high endurance Unmanned Aerial Vehicles (UAV) (e.g., Air Force's Predator and Global Hawk) and smaller tactical UAVs (to include Army's SHADOW 200), providing flexi-

bility and adaptability to meet the immediate needs of battlefield commanders in Iraq and Afghanistan. The DOD continues to invest in other UAV programs like the Navy's Broad Area Maritime Surveillance (BAMS) and vertical take-off and landing (VTOL) tactical UAV (VTUAV). The Joint Unmanned Combat Air System (JUCAS), conceived as a combat aircraft, may prove to have ISR potential as well.

The Aerial Common Sensor (ACS) is a project now wholly within the Defense Airborne Reconnaissance Program (DARP) for fiscal year 2005, realigned from TIARA and the JMIP's DCP and consolidated within DARP. ACS is an Army-led, joint airborne ISR system that will meet both Army and Navy requirements. ACS will provide commanders with tailored, multi-sensor intelligence using four to six onboard operators. The robust ACS Multi-sensor capabilities include communication intelligence (COMINT), electronic intelligence (ELINT), imagery intelligence (IMINT) and MASINT sensors, incorporating electro-optical (EO), infrared (IR), synthetic aperture radar (SAR), Ground Moving Target Indicator (GMTI), and multi- and hyperspectral imagery sensors. For the Army, ACS replaces the aging RC-12 Guardrail Common Sensor and the RC-7 Airborne Reconnaissance Low fleets beginning in fiscal year 2009, while the Navy will replace their EP-3E Aries II aircraft with ACS beginning in fiscal year 2012.

Prominent among new investments to realize the intelligence goal of persistent surveillance is the SBR. The fiscal year 2004 SBR appropriation was \$198 million and the fiscal year 2005 request is \$438 million, spread across three TIARA and JMIP budget lines. The fiscal year 2005 request is critical for the concept development activities we are pursuing under the SBR acquisition strategy. The surveillance provided by a space-based radar, in combination with other complementary space and airborne systems, could bring us much closer to realizing persistent surveillance. SBR plays to an established area of U.S. technological advantage with its all weather, day/night, and worldwide multi-theater access. SBR capabilities will include:

- Surface moving target indication
- High Resolution SAR imagery
- High Resolution Terrain information

Among the products envisioned from using these SBR capabilities are:

- Maneuver Doctrine
- Relocatable Entity Tracking
- Treaty Monitoring/Verification
- Coherent change detection (CCD)
- Dynamic Imaging

#### HORIZONTAL INTEGRATION

These new ISR capabilities will be enabled by an overarching Horizontal Integration (HI) strategy that compels an integrated approach to acquiring and applying collection assets—a planned “system-of-systems” that integrates surveillance capabilities across the various human and technical intelligence disciplines and national, theater, tactical, and commercial programs. This provides the mechanism to share information across the enterprise—increasing the likelihood that events can be correlated and fused to increase the accuracy, timeliness and value of intelligence.

OUSDI is working closely with the IC to achieve the horizontal integration of currently fielded and future DOD and IC intelligence systems. The aim of HI is to take full advantage of future intelligence systems that provide agile and persistent collectors, enable ease of information sharing, and support predictive analysis to deal with a strategic environment characterized by adaptable adversaries, accelerated technology diffusion, and the increasing potential for disruptive and destructive attacks.

Pursuit of HI was a key recommendation of the Kerr Panel report on remote sensing in 2001 and it was the primary recommendation from the July 2003 Transformational Space and Airborne Project (TSAP) report sponsored by DOD and the IC. The TSAP study found that near term improvements in intelligence capabilities could best be realized by focusing on HI and recommended immediate implementation of initial policy, management, and organizational improvements.

In August 2003, a Senior Steering Group for HI was formed to guide the implementation of these key capabilities across DOD, the IC, and law enforcement. This steering group is co-chaired by the Assistant Director of Central Intelligence and myself.

Among the principles guiding our approach to HI:

- It places emphasis on the tailored mission needs of consumers;
- It shifts the focus from data ownership to data usability; and

- Accordingly, it urges that all data must meet net-centric standards at its earliest point of consumability and be broadly available.

Quite honestly, we have not yet worked out between DOD and the IC the many thorny issues that need to be resolved to realize the promise of HI. However, I do believe that the vision of a seamless and transparent capability to translate analysts' needs into the collection of information, and the availability of that information in a timely fashion to be structured in useful formats to those who need it, will come in its own time. The advance of the Internet, with the adoption of its features both within Defense and the IC, suggest to me that this time is not far off.

#### *Intelligence Campaign Plans*

As we develop integrated approaches to acquiring and applying collection assets, we must also develop integrated approaches for planning and conducting intelligence operations. We have begun exploring the concept of Intelligence Campaign Planning, which is designed to synchronize and integrate intelligence into the commander's adaptive planning process and, when fully developed, will bring together DOD and IC capabilities in a more synergistic effort. Intelligence Campaign Plans are designed to focus the IC's capabilities on the commander's critical decision requirements. Under the old paradigm, intelligence developed stove-piped plans that were poorly coordinated. Recent lessons learned and new operational concepts require intelligence plans that are fully integrated, multi-discipline, holistic and support all phases of operations.

To that end we have asked the Commander, Joint Forces Command, to begin the concept development process, focusing initially on three elements of Intelligence Campaign Planning: defining and developing the concept, creating a comprehensive methodology for use by the DOD IC, and designing an exercise venue for validating the concept and methodology.

To fully realize the promise of robust Intelligence Campaign Planning, we have begun an intensive, long-term strategy for remodeling defense intelligence in order to address several of our major objectives. This remodeling effort focuses on "operationalizing intelligence," transforming the functions and capabilities of Defense intelligence into more than simply a supporting arm of the DOD, but rather into a true joint operational capability. We are examining organizational approaches that could provide senior DOD leaders and military commanders a wide array of intelligence options against mobile and adaptive adversaries. Those organizational approaches are being evaluated for their contributions.

#### *Human Intelligence Revitalization*

HUMINT is one of our top priorities in the defense intelligence remodeling effort. HUMINT in the DOD context is much more than clandestine recruitment of assets. It includes clandestine logistics, overt debriefers, and interrogators, as well as the hundreds of Tactical HUMINT Teams we have deployed in the U.S. Central Command (USCENTCOM) Area of Responsibility (AOR). We have taken steps to provide better management and oversight of HUMINT resources by establishing a new JIMP Program, the Defense Human Intelligence Program to give us better management and oversight of HUMINT resources.

Finally, we are studying a number of inputs gathered from combatant commands and the Services, including lessons learned from both Afghanistan and Iraq, regarding their clandestine and overt HUMINT needs.

#### REMODELING DEFENSE INTELLIGENCE

Proposed plans and initiatives for Defense intelligence transformation are the culmination of almost 10 months of work. We began with a multi-service, interagency study titled "Taking Stock of Defense Intelligence," which we have offered to your staff. Our efforts to remodel defense intelligence are a work in progress, but we are moving toward implementation, while consulting across the defense IC, the national IC, and supported warfighters as we move forward. In the coming months, I look forward to sharing with you the progress we are making and refinements in our plans as we pursue this goal.

#### CONCLUSION

Our Nation possesses a preeminent advantage: A global intelligence capability composed of the very best people and the finest technology anywhere. Military capability, guided and enabled by intelligence, is a powerful instrument. The DOD—along with its IC colleagues—are reshaping and revitalizing intelligence capabilities to meet the more rigorous demands of today and tomorrow. I look forward to the

opportunity to work with you to improve the Nation's intelligence capabilities in this time of war. Again, thank you for your support. I look forward to your questions.

Senator ALLARD. We will put your full statement and each one of your colleagues' in the record. I would ask that the rest of the panelists, in their testimony, try and limit their comments to around 3 minutes or so, so we have plenty of time for questions from the members of the subcommittee. Just remember that we're going to have your full statement in the record, and will have an opportunity to go through it in detail.

Also, Secretary Cambone, I'd just remind you that we'll be going through with the defense authorization bill here relatively quickly, and so if you have suggestions that you're going to submit to this subcommittee and to the Armed Services Committee, we need to be getting those quickly. Perhaps before you even complete your process, give us some heads-up of what you're thinking so that perhaps we can begin to get our staffs working on some of those issues.

Let me next go ahead and call on General Alexander, Deputy Chief of Staff, G-2, Department of Army.

General Alexander.

**STATEMENT OF LT. GEN. KEITH B. ALEXANDER, USA, DEPUTY CHIEF OF STAFF, G-2, DEPARTMENT OF THE ARMY**

General ALEXANDER. Sir, thanks for the opportunity to appear here, Mr. Chairman and distinguished members of the subcommittee. It is an honor to be here and to tell you about what's going on in Army intelligence.

As I walk the halls and go out to each of our units, I'll tell you that the spirit that we have in Army intelligence is as high as it has ever been. With the operational tempo that we have going on, I know this might sound strange to you, but that is, in fact, what I see when I talk to our soldiers. The reason it's high is because we have an opportunity to make changes that both of you have addressed earlier on, and we see those changes as required to get us into the future. That's what we see in transformation, Army transformation, that it's needed to get the intelligence that you both spoke of to all the soldiers and the operators that we have in the field.

Now, I think there's two key points to make on this. First of all, the Army leadership has backed actionable intelligence as part of Army transformation fully. General Schoomaker, the Vice, and the acting Secretary have been superb. I think equally important is Dr. Cambone in the OUSDI has been superb in providing us support and mediating between the agencies that which the Services need, and that support has also been superb and something that's needed in Army intelligence for as long as I can remember.

In Army intelligence transformation, there's a few things that I'd like to note, with a few vignettes. First, in our transformation, a key point that you brought out, sir, is changing the culture and mindset. When we talk about culture and mindset, first and foremost, when we put a unit on the battlefield, we have, in every soldier, a sensor. Getting that information that that soldier has to the other soldiers and to the operators out there is key. The second one is fighting for knowledge, creating your own luck. Those culture and mindset changes that we're trying to instill in the Army are



important, and can only happen when we start to make some of the other changes that we've put in the paper that I've provided; specifically, tying those sensors and soldiers to a network, enabling that network and the analytic centers to work together, and providing them access to the databases.

Let me give you some examples of how this has worked and where we see it going in the future. In Kuwait, in 2002, we had soldiers from 3rd Infantry Division working with soldiers from our theater and national brigades doing all sorts of collection on Iraqi border guards, their outposts, their actions, where they were located, and how they operated. That information allowed the 3rd Infantry Division intel soldiers to tell their chain-of-command where these outposts were, what they were doing, and how to target them. The outcome was zero casualties for our folks and the take-down of every one of those outposts. The lesson learned is, how do we as an Army use our soldiers, tactical soldiers in national-level/theater-level operations, to get them the skills and the training that they need? We're going to do that in Army transformation under a program called Foundry.

The 3rd Infantry Division went from Kuwait to Baghdad. One of the tactical HUMINT teams picked up an air force general. An Iraqi air force general. I wanted to make that clear. [Laughter.]

This Iraqi air force general had on him a series of names—key names, places, and events that were used by our forces to pick up key Iraqis necessary in our campaign. I can give you more in closed session on that. But the part that I wanted to bring out was the tactical HUMINT team. When I went over there and talked to every division commander, they said, "We need more tactical HUMINT. We need more unmanned aerial vehicles (UAV)." Sir, part of Army transformation gives them both UAVs and tactical HUMINT.

Another tactical HUMINT team ran into a few guys coming down the road, they stopped him, opened up his trunk, and he had a bunch of money and some other paraphernalia in there. He claimed he was just an ordinary citizen traveling through Iraq. This is during a firefight, and they were in civilian clothes. Kind of strange. But they policed these up. More importantly, the names of this individual and some of the other paraphernalia were sent back to the analytic centers here in the States. I think this shows you how our agencies are starting to work together, because all of our national agencies and our tactical analytic centers worked together. This guy was taken to Kuwait and by the time they got there, they knew he was a key Iraqi intel service general. They knew who he had operated with and where he had been, and that's how they could start their tactical questioning and interrogation. It was extremely important in breaking out a series of raids throughout Iraq later on in the next week.

The reason I bring that out is because, one, it shows you how important tactical questioning, analysis, and interrogation are to our folks. Two, it's how we're training them today. We call it our intel support to combating terrorism. It's done at Fort Huachuca, and it uses the lessons learned from Guantanamo to our folks in Afghanistan and in Iraq. Also, the benefits for tactical questioning, for those soldiers on the ground to know how to ask the right ques-

tions of these guys, is being taught to every one of our centers—in every one of our schools and centers throughout the United States before soldiers deploy.

Another vignette that I would use, and I can give you the highlights of this, really shows how powerful it is to bring our analytic centers together, because what we've found was, in capturing one of the key Zarqawi lieutenants is, using the power of those analytic centers and the information they had, they were able to identify, locate, and give the information to one of the SOF units to take down one of the key Zarqawi lieutenants. I'll tell you that that shows that we are making headway in how we get the analytic centers to work together with the national agencies and the tactical forces, what you call, sir, horizontal integration or whatever it may be. I'll tell you, sir, that we have made some great changes. That's what we're trying to do in transformation.

In order to get that to work, we have put together, in Korea, an operation called Project Morning Calm. In fact, that is sponsored by the USDI. That project brings together everything that I just talked about back to our elements here in the States, and is a great test bed for how we can kick-start some key things for intelligence, get that going, take those lessons learned, and apply them to Iraq and Afghanistan. Those lessons learned that we have in Korea and Iraq and Afghanistan, we're moving amongst all three of those, and we have a team that is doing those in each. I know that the Chief of Staff of the Army has brought that up to you previously.

Sir, I appreciate the opportunity to be here today, and look forward to answering any of your questions.

Thank you.

[The prepared statement of General Alexander follows:]

PREPARED STATEMENT BY LT. GEN. KEITH B. ALEXANDER, USA

#### OPENING COMMENTS

Mr. Chairman and members of the subcommittee, I am Lieutenant General Keith Alexander. Thank you for this opportunity to testify in support of the JMIP and Army TIARA. I would like to personally thank each of you for your support, which is vital to our soldiers fighting the global war on terrorism on the ground in Iraq, Afghanistan, and throughout the world. Your support is sincerely appreciated and is critical as we continue to fight the war, rapidly adapt and transform our current force and design the future force.

Army Intelligence is fully embedded within the aggressive Army transformation plan which is moving from the current to future force . . . now. Focused on fixing the current force while building towards the future force, we are synchronized within the overarching Army plan, ensuring that the intelligence capabilities and processes are fully capable of supporting a joint and expeditionary quality force that will be relevant and ready to fight our Nation's wars and defend our homeland. As we continue to fight this war, improve and reset our current force and transform while in contact, we remain intrinsically synchronized with the DOD intelligence objectives. We are also working closely with the other Services, the combatant commands, the combat support agencies, the joint community and the USD, I to ensure we develop an integrated and relevant IC. Within this written testimony, I would like to briefly discuss the following areas:

- Intelligence lessons learned from the global war on terrorism
- Army Operational and Tactical Intelligence support to the war
- Army Intelligence JMIP and TIARA program highlights
- Army Intelligence Transformation—Actionable Intelligence

## BACKGROUND

Our Army, our Army Intelligence team, and our soldiers are fighting and are doing a superb job not only in Afghanistan and Iraq, but also throughout the entire world. By the end of this year, 9 of our 10 active Army Divisions—all but the 2nd Infantry Division committed in Korea—will have seen action in Afghanistan or Iraq. More than 325,000 soldiers remain forward-deployed and stationed in 120 countries around the globe supported by over 164,000 mobilized Reserve and National Guard soldiers while 23,000 soldiers are directly supporting global war on terrorism operations within the United States. Decisively engaged in defending our homeland and fighting the global war on terrorism, Intelligence soldiers are serving with distinction at home and abroad. As of 12 March 2004, there were approximately 2,700 active component and more than 1,000 Reserve component Intelligence soldiers mobilized for active Federal service in support of Operation Noble Eagle, OEF, OIF, and Joint Task Force, Guantanamo (JTF-GTMO).

We are making significant improvements within our current force, fixing problems, adapting processes and systems and are giving our commanders and soldiers the best possible support and systems available, but we are not done—we still have a lot to do. We are working through the institutional procedures and policy barriers that have been in place since the Cold War. We intend to rapidly adapt structures and procedures to develop and field the equipment our soldiers need and deserve today, vice waiting years as we now do under an archaic and lengthy acquisition process.

The Army is fighting a war while simultaneously rotating, resetting, rethinking, rebalancing, restructuring, and designing a future force; incorporating lessons learned while also spiraling technology insertions into the current force. As we design and incorporate technological solutions for the future intelligence force, we are also pulling relevant technology to the left (spiral insertions) into the current force. The INSCOM Information Dominance Center (IDC) and Project Morning Calm are exceptional examples of how we are accelerating transformation by operationally applying new analytic tools and capabilities in support of Army and Joint Warfighters for insertion or inclusion into our new systems, most specifically, Distributed Common Ground System-Army and Joint (DCGS-A and DCGS-J).

We are moving from the current force to the future force . . . now:

- to reflect wartime realities
- to incorporate “next generational” capabilities
- to keep soldiers first
- to develop a Joint and Expeditionary Army

## INTELLIGENCE LESSONS FROM THE WAR

Traditional intelligence methods and products served U.S. forces well during the combat phase of OIF, although there was a notable degradation of situational awareness for forces on the move because of the lack of an adequate network and the inability to fuse all source intelligence while on the move. During Phase IV (Post Combat Operations), intelligence sensing requirements shifted dramatically to Human Intelligence (HUMINT) as the principal of the intelligence disciplines rather than more technical collection means.

Following an on-the-ground assessment of the intelligence resources and processes in Iraq, the Army G2 Staff worked with CJTF-7, identifying long and short term solutions to improve intelligence for OIF and to improve the current force. Short-term solutions are well underway. Of the 127 actions initially noted, the majority are in place today and new actions are being addressed as they are identified not only in support of OIF, but OEF as well. These lessons are proving critical as we concurrently develop an intelligence transformation to the future force.

The intelligence related lessons learned are categorized in four major areas:

(1) Tactical collection: Overall, analysis and sensing capabilities were inadequate at maneuver brigade and battalion echelons. Since the ability to strike at the enemy exceeded our ability to target them, we needed more UAVs and other targeting sensors. Every Division Commander stated that they needed both more UAVs and more Human Collection Teams (HCTs). Limited capabilities to conduct tactical surveillance of the enemy revealed the need for more SIGINT assets and more HUMINT capabilities. We are addressing these priorities through our close work with Task Force Modularity in redesigning the Army's new Maneuver Units of Action (Brigades of today). We are ensuring there are sufficient organic collection and analysis capabilities to meet the identified requirements. Some upgrades already implemented include augmenting units monitoring borders with existing sensors and further providing leading-edge capabilities as they become available. We have also in-

stalled special-purpose document exploitation suites (Harmony) to facilitate Document Exploitation (DOCEX).

(2) Reporting: The information obtained from combat patrols, logistics activities, and other non-Military Intelligence (MI) missions was not adequately integrated into the intelligence system for analysis. Information that soldiers reported was not in digital form and therefore did not enter the reporting system quickly enough to be of operational use. The small percentage of reports that actually entered the intelligence system were manually transcribed and entered the analytic network after the completion of the operation. To resolve this issue, we must digitize all reporting at the point of origin and connect the soldier and tactical echelons to the network. In the near term, we are rapidly fielding Force XXI Battle Command Brigade and Below (FBCB2) to provide a reporting and intelligence exchange capability at the soldier level. To link the soldier and tactical echelons to the network we are rapidly creating and fielding DCGS capability down to battalion level. We also must re-emphasize the doctrinal aspects of tactical reporting. The Intelligence Center and School has sent out a Mobile Training Team to address both this and tactical questioning issues.

(3) Access to National Intelligence: We have made great strides in information access, but we still have a way to go. Intelligence access was, and still is, constrained by policies that restricted dissemination and use, especially at the tactical level (division and below). These policies complicated basic access to many databases, limiting our ability to conduct all-source analysis. We are working with DOD to eliminate classification dissemination caveats and grant universal data access. Initiatives such as the IDC and Project Morning Calm are assisting in accessing and providing access to various databases and agencies. We are building Trojan Spirit (a classified communications capability) into every Maneuver Unit of Action.

(4) Networking Analytic Centers: During the war, especially as troops deployed forward, we had large volumes of message traffic, with incredible amounts of information, but did poorly in extracting and synchronizing relevant knowledge with our tactical forces. The increased volume of intelligence at higher echelons could not be processed, refined or fused for tactical or operational use on a timely basis. We had good situational awareness across the force until our units crossed the line of departure (LD) into combat. After crossing the LD, the pace of the attack limited shared situational awareness and resulted in a constant movement-to-contact operational environment. This lack of shared situational understanding revealed the need for a digital intel-on-the-move network capability supported by communications-on-the-move at the lowest echelons. We also need to evolve our doctrine such that analytic centers provide "overwatch" of tactical formations 24/7.

#### ARMY INTELLIGENCE SUPPORT TO CURRENT OPERATIONS

The soldier is our focus—every soldier is a sensor. We have over 120,000 soldiers—sensors—located on the battlefield in Iraq. The soldier on the ground, patrolling and interacting within their environment or battlespace, has constant access to immeasurable amounts of data. Information is reported verbally at the lowest levels and a small portion is later digitized into a database. In the end, the majority of observations—reports by soldiers on the ground typically do not make it into the reporting network. Further, we must continue to develop training our soldiers as sensors or collectors of battlefield information. They do not fully understand how to observe or sense their environment. At the opposite end of the spectrum, since the soldier is not connected to the network, he is not receiving the most current data or information relevant to his battlespace or environment. We would not send our pilots up without ensuring that they were digitally linked with the best, most relevant, actionable intelligence available, such as early warning radar. But, today, we send our soldiers into battle, unlinked and without dedicated intelligence support.

Fight for Knowledge. The successful units at the tactical echelons (company through brigade) within Iraq and Afghanistan have developed a tactic we refer to as "Fight for Knowledge." They are not waiting for intelligence from higher to tell them where the enemy is. They are utilizing combat patrols, interaction with the local populace, and any other legitimate means at their disposal to acquire intelligence and knowledge to enable operations (combat intelligence, when merged with intelligence from higher, is a powerful force enabler). They are, in essence, "creating their own luck,"—"fight(ing) for knowledge." They are reinvigorating the existing, but often neglected concept of Combat Intelligence. Prior to revitalizing this concept, unit commanders would wait for intelligence to come from higher before acting. In the type of war we are fighting now—over mountains, through caves, house to house—our technical collection will not always provide all the information required

to enable action. (“Fight for Knowledge” will become further enhanced when we digitally connect the soldier and lower tactical echelons to the network.)

**Tactical Overwatch.** Currently, tactical units receive their intelligence through an echeloned structure: from national, to theatre, to corps, to division, and so on. This lockstep methodology is a remnant of industrial-age, Cold War structures and procedures. Before OIF, this process was marginally adequate when units were static or garrisoned; however, the dissemination and reporting channels collapsed when the units moved into battle in Iraq. This legacy process causes information or intelligence latency. Latency that is caused by the existing echeloned structure that requires information and intelligence be sent step by step, through the various levels of command, which can often take hours, if not days. The lower tactical echelons rarely receive the intelligence in a timely manner, nor do they have direct access to experts located at agencies in the United States or elsewhere. This also impacts the ability for lower tactical echelons to provide critical reports that are relevant to the higher agencies or headquarters that need them. Our vision is to implement a new approach to this concept, creating a dedicated structure to provide intelligence or tactical overwatch, focusing higher level intelligence capabilities in direct support to the tactical echelons. We have already started this effort through support provided by the IDC and through initiatives such as Project Morning Calm and The Pantheon Project.

*Three initiatives have significantly contributed to the overwatch concept over the last year and continue to contribute to the overall establishment of an overwatch capability in the future.*

The IDC is an operational, state of the art, analytic Intelligence center. The IDC has been and continues to support the tactical forces engaged in Iraq and Afghanistan through direct support to the JTF Headquarters or through the IDC extensions located in direct support to CJTF-7 and JTF-GTMO. The IDC has pioneered and is using processes and methodologies for timely situational awareness and analysis of complex networks of individuals and organizations that can be shared to the extent that the network and/or policies allow. The IDC uses advanced software tools and special data access agreements to extract, correlate and capture the essence of vast amounts of information across many databases. The IDC is the premier Army Intelligence test bed for advanced, new technologies and concepts which, when operationally proven, are spiraled into the Intelligence Community and the tactical force. The true power of the IDC will be realized when the tactical overwatch initiative is fully established along with a global network.

**Project Morning Calm:** An outgrowth of the IDC is an initiative referred to as Morning Calm and sponsored by the Office of the Secretary of Defense (OSD). This is a rapidly evolving intelligence structure in support of a theater combatant commander; virtually a testbed for concepts that may have application in global war on terrorism and all theaters in both joint and combined environments. Morning Calm creates an all-inclusive intelligence “system” capable of rapidly sharing and visualizing intelligence and all disparate data, from the numerous collection systems and agencies, tactical through national and combined. Morning Calm demonstrates a revolutionary capability to merge high volume, multi-lingual, live collection feeds (streaming data) with the U.S. Army Intelligence and Security Command (INSCOM) IDC advanced technological processes for interacting with large repositories of disparate data types in a much more rapid, timely, and visually intuitive manner than currently available. Numerous overwatch related tools and technologies have already been developed within this project—benefiting from the development of advanced tools and capabilities operationalized within Morning Calm.

**The Pantheon Project:** This initiative has contributed significantly to advancing technological innovations within the IDC, Morning Calm, and the entire IC. This project has brought together a grouping of world-class individuals from business, academia, and government to address and solve the hardest technical problems, creating technological or procedural solutions for the enhancement of tactical through national intelligence echelons. These solutions have been rapidly spiraled forward primarily into the IDC and Morning Calm Project. While previously done ad hoc, and through the generosity of several “patriots” who have volunteered their time to enable this rapid technology insertion program, our goal is to formalize this initiative into a core group who will constantly be on call to assist with issues and provide expert advice.

**Systems.** Supporting the tactical echelons were several TIARA (funded) systems to include: Ground Surveillance Radars (GSRs); Prophet; All Source Analysis System (ASAS); Counterintelligence/Human Intelligence (CI/HUMINT) Information Management System (CHIMS); Integrated Meteorological System—Light (IMETS-L); Remotely Monitored Battlefield Surveillance System (REMBASS); GUARDRAIL

Common Sensor (GRCS) airborne ISR system; UAV, Shadow 200 and Hunter—and Tactical Exploitation System (TES). We have also successfully deployed our JMIP funded UAV, Shadow 200 and Hunter. All of these systems have and continue to successfully support tactical echelons in OEF, OIF, or both. A noteworthy achievement was the ability to rapidly insert technology patches—upgrades into some of these systems to adapt them and maximize capabilities—based upon the threat in both Afghanistan and Iraq. A noted shortcoming was that these systems were neither networked nor integrated. Even when data was collected, often it did not make it to the required database or user; or, if it did, it was extremely late. Our transformation plan includes the rapid convergence of many of these systems into the Distributed Common Ground System—Army (DCGS—A), which is addressed later in this paper.

Tactical HUMINT: Our tactical HUMINT HCTs continue to provide critical intelligence, supporting both ongoing missions and Force Protection to our units serving in both Afghanistan and Iraq. With the Services short on linguists across the board, contract linguists have successfully augmented the HCTs. HCTs integrated themselves into the tactical echelons and provided superb support throughout the force. These teams, especially in the follow-on phase of operations, were lauded by commanders who have consistently requested additional teams—a request that our existing inventory cannot sufficiently supply. One notable shortcoming was the inability to network these teams while they were on the move.

Today, Our soldiers are adapting, learning to observe and report. Our tactical commanders have also learned to use patrols aggressively to interact with the environment and collect combat intelligence. Our systems have operated well overall and numerous adaptations or improvements have been incorporated in order to maximize their effectiveness. Our HCTs, although lacking in quantity, have established themselves as the premier force enabler. Overall, each separate, distinct area of the intelligence fight is working well with the exception of an integrated network that binds these similar, but disparate, entities together to create an integrated framework. We have several initiatives geared to resolve this issue. The most critical one is establishing the network:

#### *Establishing the Network*

The top priority for Army intelligence transformation is rapidly converging our current “diverse” intelligence processors into the DCGS—A. DCGS—A is a modular and scaleable family of multi-intelligence systems for posting, processing, exploiting, and updating ISR information. While it will eventually replace current and future Army intelligence processing systems (TIARA and JMIP) for national, joint and Army organic sensor data, the Army intent is to rapidly build and field an integrated DCGS—A capability, establishing intelligence interoperability vertically across all echelons down to the battalion level. It is important to note, we are dependent on the Army network for much of our collateral connectivity.

DCGS—A will be implemented using a spiral development acquisition strategy through the evolutionary merging of existing and programmed Army processing systems, including ASAS, GUARDRAIL Information Node (GRIFN), future ACS ground processing segment, Army Space Program Office (ASPO) Tactical Exploitation System (TES) Tactical Exploitation of National Capabilities (TENCAP) processing systems, Joint STARS Common Ground Station (CGS) SAR/MTI processing, TUAV Ground Control Station (GCS), and Tactical Control System (TCS). All DCGS—A components will comply with Service, Joint, and National interoperability standards.

The current emphasis is to converge several different existing systems (ASAS, TES, CGS, CHIMS, CHATS) into what are being referred to as battalion and brigade DCGS—A thrusts. These initial systems will consist of existing off-the-shelf-type equipment utilizing existing hardware and software to establish a network-centric environment and get the capability into the hands of our soldiers now, vice years down the road. As future DCGS—A upgrades come to fruition, they will be spirally inserted into the existing DCGS—A thrusts that we will have already established within the various echelons. In the near future, DCGS will be the “hub” for the DOD to effectively implement the information sharing relationships between the warfighters, the service intelligence analysts, and the IC. The end result will be, for the first time, a common intelligence network with common analytical tool sets truly enabling horizontal and vertical collaboration and integration. DCGS—A will be implemented using a spiral development acquisition strategy through the evolutionary merging of existing and programmed Army processing systems, including ASAS, GUARDRAIL Information Node (GRIFN), future ACS ground processing segment, ASPO TES Tactical Exploitation of National Capabilities (TENCAP) processing systems, Joint STARS Common Ground Station (CGS) SAR/MTI processing, TUAV

Ground Control Station (GCS), and Tactical Control System (TCS). All DCGS-A components will comply with Service, Joint, and National interoperability standards.

Unique to the DCGS-A initiative is our plan—already initiated—to integrate “legacy” systems rapidly into DCGS, investing into the future system vice continuing to spend money on a system or program that will be terminated in the very near future. Also, in conjunction with INSCOM, theater level DCGS-A will be integrated with the various INSCOM IDC hubs located at the different theater intelligence groups and brigades throughout the world. In essence, home station DCGS and the IDC hubs will become merged. This will enable the merging of technology and tool sets into one common system, and allow for proven integration of IDC technologies already in use and supporting the war, into the DCGS-A program.

The Army is also progressing with fixed-site DCGS-A assets at various garrison locations. This will give the Army a home-station ability to support the joint as well as organic forces from sanctuary locations 24 hours a day, 7 days a week. The Army will have access to National and Air Force reconnaissance assets as well as Army organic assets. The Army fixed-site DCGS capability is in its formative stage with an initial capability at the 66th Military Intelligence Group in Darmstadt, Germany, as well as at the 501st Military Intelligence Brigade, located in South Korea.

#### ARMY INTELLIGENCE JMIP AND TIARA PROGRAM HIGHLIGHTS

Tactical intelligence capabilities provided by TIARA and JMIP programs continue to be extraordinarily critical to the ability of the ground maneuver force’s ability to prosecute the war. Our MI soldiers are performing superbly as they collect, analyze and process data and information into intelligence, so that the ground commander can rapidly act against a very adaptive and mobile enemy. Our focus is to enable them and the entire intelligence enterprise to be connected to the intelligence framework.

##### *1. Overview*

Army TIARA comprise an array of 25 separate programs and systems, training programs, and forces that are located throughout the Army. The various TIARA programs are engaged in ongoing military operations, whether conducting combat counterterrorism operations in Iraq and Afghanistan, supporting homeland defense, maintaining the armistice along the Demilitarized Zone (DMZ) in Korea, or enforcing the peace between various factions in the Balkans. Last year, Army intelligence supported the full spectrum of warfare ensuring that ISR capabilities were pervasive throughout the current force, the Stryker brigades, and are setting the stage for the future force. This year, as the Army continues to support U.S. commitments, Army transformation remains on track and, in many cases, is being accelerated by the Army’s Focus Area initiatives to address the urgent operational needs of our Nation’s global war on terrorism. Army intelligence transformation is embedded within the Army Campaign plan and is allowing the Army IC to fast track several initiatives that will improve intelligence support to the tactical forces.

The Army JMIP consists primarily of research, development, and acquisition programs for manned and unmanned airborne ISR systems, advanced SIGINT, and intelligence tasking, posting, processing, and using (TPPU) (also known as tasking, processing, exploitation, and dissemination (TPED)) systems. Army TIARA and JMIP are focused on supporting the tactical echelons with Actionable Intelligence: providing commanders and soldiers with a high level of situational understanding, delivered with the speed, accuracy, and timeliness necessary to operate at their highest potential enabling rapid and successful execution of operations. Army intelligence transformation, empowered by the TIARA and JMIP systems and programs, achieves its intended purpose of empowering greater individual initiative and self-synchronization among tactical units by integrating information across organizations and echelons, accelerating the speed of decisionmaking and the agility of operations.

##### *2. Language Program*

The Army is DOD’s Executive Agent for the Defense Language Institute and Foreign Language Center (DLIFLC) in Monterey, California. DLIFLC annually trains 3,500 of the best-trained linguists in the world and continues to be the pre-eminent language schoolhouse in the world, providing 700,000 hours of instruction in 23 languages at Monterey and 85 languages through the Washington Office.

DLIFLC is also on the forefront of using distant learning tools designed to maintain and improve language skills of service members. The Satellite Communication for Learning (SCOLA) program, using live television programs from over 25 countries beamed via satellite to posts, ships, and armories around the world, continues

to be a vital tool to maintain easily perishable language skills. DLIFLC provided support to field operations through over 9,200 hours of Video Tele-Training (VTT) and 2,000 hours of mobile training team support using DLIFLC instructors.

The global war on terrorism has strained the Army system that provides trained linguists in support of DOD and national agencies, as well as the warfighter. Thousands of additional requirements in Arabic, Kurdish, Pashto, Urdu, Dari, and other languages have exhausted the Army's organic linguist base in the active and Reserve components. Consequently, the Army has outsourced more than 6,000 linguist requirements in support of the global war on terrorism. The cost per annum of a single contract linguist varies from \$15,000 per year for a locally hired linguist to approximately \$200,000. Factors such as clearance and duty location requirements contribute to the total cost. Further, there are simply not enough U.S. citizens with the requisite language skills and desire to deploy to harsh, frequently dangerous, locations to support the cleared linguist requirements of the Army, DOD, and the national community, thus increasing the demand from the same linguist pool. The cost to the Army of supporting the global war on terrorism with contract linguists this fiscal year exceeds \$250 million. The annual cost of the language contract in Bosnia, employing over 900 locally hired linguists is an additional \$36 million. Given the number of linguists required by commanders across the battlespace, contracted linguists will remain a necessity for the foreseeable future.

JTF-GTMO: The Chairman of the Joint Chiefs of Staff (CJCS) established Joint Task Force—Guantanamo Bay, Cuba (JTF-GTMO), to support detainee operations (including detention and interrogations) for enemy combatants who come under U.S. control. We must continue to operate and maintain support for the assigned intelligence missions and personnel. Counterterrorism supplementals provided initial funding for detainee operations and military construction at Guantanamo Bay in both fiscal years 2002 and 2003. As an ongoing requirement, program funding commenced in fiscal year 2004 as part of the JMIP. Supported missions include: screening, interrogation, intelligence collection, and interaction with other agencies involved in the detainee operations.

Questioning JTF-GTMO detainees improved the security of our Nation and coalition partners by expanding our understanding of al Qaeda, its affiliates and other extremely dangerous terrorist groups that threaten our security. Detainees have revealed al Qaeda leadership structures, operatives, funding mechanisms, communication methods, training and selection programs, travel patterns, support infrastructures, and plans for attacking the U.S. and other countries.

### *3. Airborne Intelligence, Surveillance, and Reconnaissance*

Army airborne ISR is currently operating at a high tempo in support of ongoing military operations worldwide. Today, all five of our Military Intelligence Aerial Exploitation Battalions (AEB) are forward deployed, or recently returned to home station, again preparing to re-deploy in support of worldwide operations.

- Our Korea-based GUARDRAIL Common Sensor (GRCS) and Airborne Reconnaissance-Low (ARL) AEB continues to provide over 80 percent of the Sensitive Reconnaissance Operations (SRO) on the Korean peninsula.
- In November 1995, our Germany based GRCS AEB deployed to Taszar, Hungary, in support of Task Force Eagle. This GRCS unit provided critical indications and warning, and force protection oversight during the implementation of the Dayton Peace Accords. After 3-plus years in Hungary, this unit further forward deployed to Brindisi, Italy, in support of Task Force Falcon operations in the Balkans. In late February 2003, this unit redeployed to Germany for 5 short months to refit and refurbish in preparation for its deployment in support of USCENTCOM and OIF. At present, this unit is scheduled to redeploy to Germany in September of this year.
- The first of two U.S.-based GRCS AEBs deployed in August 2001 to participate in Operation Phoenix Venture in the USCENTCOM area of responsibility (AOR). After 8 months supporting the USCENTCOM AOR, this unit deployed to South America to support the U.S. Southern Command (USSOUTHCOM) commander. Following a successful 2-month deployment, this unit again forward deployed into the USCENTCOM AOR to support OEF and OIF. This unit redeployed to homestation in October 2003, and is preparing to again deploy in September of this year.
- Our CONUS-based ARL AEB that supports Joint Forces Command (JFCOM) is currently deployed to the USSOUTHCOM AOR. Based upon the USSOUTHCOM combatant commander's requirements, portions of this unit are now deployed 365-days a year to support the theater's coordinated ISR plan in Colombia.



- In May 2002, our second CONUS-based GRCS AEB deployed to provide additional support to USCENTCOM. This unit redeployed to homestation after a successful 13-month deployment. At present, the unit is conducting refit and refurbish requirements in preparation for its redeployment in August of this year to support continuing OIF intelligence requirements.

The Army continues to work to ensure that our ISR aircraft deploy with AOR specific hardware and software capabilities. We have also continued to stress interoperability, and are achieving notable success in Airborne Overhead Cooperative Operations (AOCO) in coordination with the national systems. For the past 4 years we have fielded cooperative capabilities to all four GRCS units. AOCO allows us to connect a single GRCS aircraft to an National Reconnaissance Office (NRO) capability facilitating precision location especially at increased depths. Additionally, this capability yields other benefits such as improved geometry to the target, increased range, and connectivity to the National Intelligence infrastructure via the GRCS integrated processing facility. This dramatic interoperability success and sharing of functionality between systems is also a requirement for our future force airborne ISR system, Aerial Common Sensor (ACS).

GRCS is the workhorse of Army airborne ISR at the corps and theater level. There is no other ISR system in the world that equals the ability of GRCS to provide responsive, precision SIGINT geo-location data on threat communications and radar emitters. GRCS is presently flying an average of 1,900 sorties per year in support of U.S. Forces Korea (USFK), U.S. European Command (USEUCOM), and USCENTCOM.

To meet the rapidly changing threat signals environment, we are continuing selective upgrades to the SIGINT capabilities of our fielded GRCS systems by integrating advanced technologies developed through the Defense Cryptologic Program (DCP). We are also modernizing the outdated GRCS Integrated Processing Facility (IPF) on the ground, replacing it with the state-of-the-art GRIFN. GRIFN is an integral part of the DCGS-A.

To ensure our GRCS units forward-deployed in support of OIF can provide their critical information into the Global Intelligence Architecture and to ensure the system's ability to effectively prosecute terrorist targets, we are providing a near-term very small aperture terminal (VSAT) connection for forward deployed GRCS units. This connection will support GRCS's prosecution of CENTCOM targets.

ARL is our current manned, multi-intelligence airborne ISR system. ARL flies an average of 444 sorties per year in support of early warning/force protection for USFK, and over 288 sorties per year in the USSOUTHCOM AOR. ARL also flies ISR missions in support of Joint Task Force-6 (JTF-6) here in CONUS.

The Army's final ARL platform is currently in production and was funded in the fiscal year 2000 supplemental appropriation as a replacement for the system that crashed in Colombia in July 1999, while conducting reconnaissance in support of counterdrug operations. This system will be fielded in April, fiscal year 2004, and will be available to support combatant commander requirements. In fiscal year 2004, we continue to upgrade IMINT and SIGINT sensors, while also ensuring that the avionics on our oldest ARL systems meet international Airspace 2000 flight requirements. We used the Defense Emergency Relief Fund (DERF) to accelerate IMINT sensor upgrades and to develop, test and integrate MASINT sensors.

The Army continues to strive to meet airborne ISR requirements given our resource constrained environment. The fiscal year 2005 budget request will provide us the ability to minimally sustain our existing GRCS and ARL airborne fleets. We used DERF counterterrorism funding and fiscal year 2004 supplementals to provide key sensor upgrades that were required to maintain technical relevance in pursuing the global war on terrorism, but the majority of our modernization effort is focused on meeting the ISR requirements for the Army's future force.

The Army's next-generation manned, airborne, collection platform will be ACS, which will replace both ARL and GRCS. ACS is a Joint Army and Navy program and will be a multi-intelligence collection system, with SIGINT, IMINT, and MASINT sensors. ACS sensor data will be processed and disseminated via the DCGS architecture. Building upon the success of GRCS, ACS will provide responsive precision targeting data to the full range of Army organic weapon systems in support of the Joint Task Force or ground component commander. The Army ACS program will meet all joint and national interoperability standards. The fiscal year 2005 budget request supports the beginning of the ACS System Development and Demonstration (SDD) phase. The robust ACS sensor suite includes precision location Communications and Electronics Intelligence sensors with the ability to prosecute new and emerging threat signals; highly accurate Imagery Intelligence sensors including: Electro-optic, Infrared; Synthetic Aperture Radar and a Ground Moving Target Indicator; and advanced Measurement and Signature Intelligence including

a Ultra/Hyper/Multi-Spectral Imagery, Foliage Penetration Radar, Masked Target Sensor, Light Detection and Ranging Sensor; Non-Imaging Synthetic Aperture Radar; Calibrated Non-Imaging Infrared Sensor; and Unintentional Radiation Sensor. These sensor suites will ensure ACS is able to successfully prosecute and precisely locate threat targets regardless of their techniques to evade detection. ACS will begin production in fiscal year 2007, with initial fielding in fiscal year 2009. Meeting these timelines is essential in order to ensure that the first ACS system is operational when the Army's initial Future Force unit is fielded.

The Army leadership continues to strongly support the rapid fielding of a Tactical Unmanned Aerial Vehicle (TUAV) in order to fill a critical warfighting capability—providing the tactical warfighting commander with the ability to physically look over the next hill, without putting a soldier in harm's way. Since the start of sustained combat operations a year ago, the Army's UAV capabilities have expanded significantly. Although limited at the outset of ground combat operations, Army UAV capability has improved and will continue to do so over this year. Our UAV lessons learned and demonstrated successful support of OIF missions have fortified our commitment to providing this capability as quickly as possible. This JMIP program accordingly remains a high modernization priority for Army tactical intelligence in fiscal year 2005. The Army has fielded 12 TUAV systems, 8 to operational units, of which, 5 are directly supporting combat operations today.

The Army's Shadow TUAV is the first UAV to be fielded through the normal acquisition process and holds the distinction of being the only DOD UAV system to achieve a full rate production decision, approved on 25 September 2002. Not only a true acquisition success story, going from contract award in December 1999 to initial operational capability in just 32 months, this system has also proved to be an invaluable asset in the hands of our deployed commanders. Between intelligence gathering and force protection, the TUAV has proven its usefulness time and again by revealing detailed information about enemy positions. By providing near-real-time combat information to commanders, the TUAV has helped save soldiers by providing video footage of the areas soldiers are moving into. The Shadow TUAV flew over 2,350 hours in fiscal year 2003 and has surpassed a total of 4,600 total hours in OIF to date. As a result of increased demand for this capability from the field, the Army is accelerating procurement of Shadow systems this year by three. The Army will field a total of 41 TUAV systems; 35 to the active component brigades, two to the National Guard, and four to the UAV training base.

Our fiscal year 2004 budget provided funding for selecting an Extended Range/Multi-Purpose (ER/MP) air vehicle to be integrated into the Army's UAV architecture by fiscal year 2009. The selection process will be completed in fiscal year 2005. This new UAV will be capable of reaching out to 300 kilometers and carrying advanced data links and payloads such as EO/IR imagery, all-weather synthetic aperture radar and moving target indicator (SAR/MTI) sensors coupled with a communications relay payload to assist the ground commander's command and control infrastructure. These enhanced capabilities will be vital to the ability of the tactical ground and Joint Task Force Commander to achieve knowledge dominance across the full spectrum of military operations in the future.

During the interim, while we are developing the ER/MP capability, we will continue to use the Hunter UAV as an intervening capability. The Army has stationed three companies of Hunter UAVs with operational units, all of which have provided support to OIF. Most recently, the V Corps Hunter company deployed to support OIF in January and continues to provide vital day and night imagery intelligence to CJTF-7. In 2003, the two Hunter units deployed in support of OIF flew over 4,067 hours with the loss of seven Hunter air vehicles. The Army has since contracted to maintain an operational readiness rate of 85 percent for our Hunter units allowing continued support to the Joint Task Force Commander in Iraq as well as maintaining training for units pending redeployment. This contract supports air and ground components of the Hunter system with refurbishment and replacement parts necessary to maintain the operational readiness rate. Replacement parts for the air component of the system will provide increased capability, reliability, and precision with new heavy fuel engines, extended center wing sections for additional fuel, and modern avionics.

More recently, the Army has developed plans to deploy the Improved-GNAT (I-GNAT), a downsized Predator UAV, provided through a congressional add in 2003. Manufactured by General Atomics, the I-GNAT was originally planned to be flown in the U.S. as a means to gain an understanding of this class of aircraft and its capability in relation to the ER/MP mission. However, operations in Iraq pre-empted this plan and the Army will now use this system to support the CJTF-7 commander with an additional day and night full motion video capability. The Army has borrowed Air Force Lynx radars to supplement the day and night capability on I-

GNAT with a near all-weather capability to provide a more robust intelligence capability to the commander. The employment of I-GNAT will be analyzed while deployed in order to develop doctrine and TTP for the ER/MP UAV.

#### 4. *Ground Intelligence, Surveillance, and Reconnaissance*

The Army's tactical ground ISR modernization efforts are focused on meeting current and future warfighting requirements. The fiscal year 2005 budget request adequately supports these efforts. Prophet is the Army's next generation tactical ground COMINT system being developed. Prophet replaces four less capable systems while significantly reducing footprint. The system provides a near real time electronic picture of the battlefield. The benefits to the commander include enhanced battlefield awareness, force protection and target development. Unlike previous systems, Prophet is able to perform collection and electronic attack on the move enabling it to operate in close support to highly mobile maneuver forces throughout the full spectrum of operations. The system also operates in two configurations, mounted and dismounted.

The Prophet program uses a blocked acquisition strategy:

- Block I provides a basic communications intelligence and radio direction finding capability
- Block II provides an electronic attack capability
- Block III provides a capability to intercept and locate modern emitters

Block I is in full-rate production and fielding will be complete to the active Force in fiscal year 2005. Fielding will not be complete to the Army National Guard unless additional funding is provided to support Army National Guard requirements. The Block II/III SDD contract was awarded in March 2003 to General Dynamics—Phoenix. The first unit equipped with Block II/III is expected in 4Q fiscal year 2005. The fiscal year 2005 budget request supports the completion of the Block I buy and the continuation of the Block II/III SDD development phase, and the initial procurement of Block II/III systems.

Prophet is an OEF and OIF combat tested system. It deployed with the SOF in the early stages of OEF and crossed the line of departure with the 3rd Infantry Division at the beginning of OIF. Prophet's on-the-move collection capability proved its worth as it detected a waiting ambush for the lead elements of the 3rd Infantry Division. It also played a key role in the capture of the international airport as it located targets for the artillery units. Prophet continues to play an integral role in both theaters as it provides critical battlefield awareness at the brigade level. As the Army looks to the Future Force, Prophet plays a critical role. Based on warfighter requests, Prophet Block I deployed with additional capabilities to meet theater specific requirements. These capabilities include beyond line of sight communications and significantly enhanced collection and processing capabilities. This is the way of the future: keeping tactical SIGINT capabilities relevant across the full spectrum of operations by insertion of evolving technology. Prophet is key to the Army's transformation effort. The system is an integral part of the Stryker Brigade Combat Team (SBCT) providing critical battlespace awareness and force protection capabilities. It has performed extremely well with the first SBCT in OIF. The Future Combat System (FCS) materiel developer considers Block III as the COMINT sensor payload baseline to meet the FCS COMINT requirements. The specific unit of action (UA) applications include the COMINT sensor payloads for the FCS Reconnaissance and Surveillance Vehicle and the Armored Robotic Vehicles. One of the key products these systems will provide to the UA commander is emitter mapping. The requirements for the unit of employment (UE) are being worked at Fort Leavenworth, Kansas. Early indications are that Prophet will be the UE ground ISR system.

Recent contingency operations have highlighted the need for electronic warfare (EW), a component of information operations (IO). While Army intelligence is not the sole practitioner of EW, it has a unique role in EW as it maintains the Army's electronic attack (EA) and electronic support (ES) capabilities. An EA capability is included in Prophet Block II/III. Additionally, the Extended Range/Multi-Purpose UAV will have an EA payload that will enable our warfighters to conduct effective non-lethal fires throughout the depth of the battlespace. Military Intelligence systems such as a GRCS, ARL and ACS work hand-in-hand to provide the intelligence or electronic support to enable EA.

#### 5. *Intelligence Fusion*

The ASAS is the current Army intelligence fusion program. ASAS and current ground processor capabilities will rapidly migrate into the DCGS-A architecture to provide: automated intelligence analysis; management of intelligence and electronic warfare resources; and production and dissemination of intelligence to warfighting

commanders and staff. Variants of ASAS are fielded at all echelons in the Army, enabling the rapid dissemination of the all source fusion picture of the current threat to forward combat maneuver battalions. ASAS is the Army intelligence interface to the warfighter Army Battle Command System (ABCS) and to the Joint Global Command and Control System (GCCS), and provides the automated ground threat picture to the Joint Command Operational Picture (JCOP). The system is interoperable with national military intelligence integrated database (IDB) standards. The next generation ASAS Analysis and Control Element (ACE) will be fully integrated with the DCGS-A systems of systems, enabling true near-real-time multi-source intelligence correlation and target development.

The ASAS reliance on commercial-based hardware and a true open architecture allows continued interoperability with current force intelligence systems, while ensuring a smooth evolution to the future. We have used congressional supplemental funding to rapidly develop and integrate new software for the analysis of non-traditional/nonstructured threats and adjust to lessons learned from OIF. This software is currently in use in Bosnia and has been delivered to all units engaged in OIF. The Army firmly believes our substantial TIARA investment in ASAS demonstrates our resolve in joint intelligence information exchange and support to the joint and ground warfighter.

#### *6. Counterintelligence and Human Intelligence*

CI and HUMINT are critical enablers to successful combat operations in environments such as Afghanistan and Iraq. Underscoring the importance of human intelligence, we have used congressional supplemental funding to accelerate procurement of the CI/HUMINT CHIMS and the integration of biometric analytic tools into the software baseline. Over 900 systems have been fielded to active component and Army Reserve soldiers who have been deployed to OIF. Fielding of these systems was a monumental task, which involved training 1,200 soldiers on the care and operation of the CHIMS. Our fiscal year 2004 funding continued spiral development and procurement of CHIMS devices and acceleration of CHIMS enhancements to our soldiers serving in OIF.

CHIMS automation has proven to be invaluable in meeting the challenge of screening, interrogating, and reporting intelligence from the large numbers of prisoners from OIF. The experience we gained has validated a requirement for state-of-the-art equipment to support the exploitation of large volumes of documents and computer magnetic storage media. In the near term, the Army has provided the CHIMS with an initial DOCEX capability.

#### INTELLIGENCE TRANSFORMATION: THE SOLDIER—OUR FOCUS

The focus of intelligence transformation is the soldier. All of our initiatives seek to leverage all collected data, utilizing smart tools and trained analysts, to conduct fusion analysis to generate relevant intelligence for decisionmakers, both commanders and soldiers. Today, our soldiers in the fight have the greatest local knowledge but the poorest situational knowledge outside their immediate area of operations (only hundreds of meters). The opposite situation exists at the Joint, Theater and national levels, where the greatest operational and strategic knowledge resides, with little to no local knowledge available.

In part, we are hindered by our own remarkable technological advantages and capabilities. Information age technology has allowed us to develop exceptional collection system capabilities. However, realizing the full power of our entire intelligence system depends not only on our ability to collect information efficiently, but also on our ability to effectively process, analyze, and most importantly, make intelligence actionable. While we made incredible improvements in our collection systems, we neglected to technically and procedurally change how we process and analyze all this information. Our collection systems gather vast amounts of information, but the majority of that information is dumped into single source databases available to only those single source analysts in that particular collection organization. This stovepipe process is a consequence of how our Intelligence Community has evolved—or, more accurately, has failed to evolve—and how we have implemented technological change while continuing to use existing processes. Focus Area Actionable intelligence—our road map for intelligence transformation—is working to bridge that gap through a variety of changes in TTP and materiel solutions.

#### ACTIONABLE INTELLIGENCE

Actionable Intelligence is one of the necessary components of achieving shared situational understanding. It requires that we change the way our Army culturally views and integrates intelligence. Additionally, we must continually develop and in-

tegrate new technology solutions systematically to maintain first advantage in terms of capabilities, technologies, and knowledge sharing.

Actionable Intelligence provides commanders and soldiers a high level of shared situational understanding, delivered with the speed, accuracy, and timeliness necessary to operate at their highest potential and conduct successful operations.

Task Force Actionable Intelligence (the Army G2's transformation initiative team) has identified four critical components that we must address within the Army in order to transform intelligence in line with the overarching Army Transformation—while remaining integrated within DOD “Remodeling” Initiatives. I will also briefly discuss six critical initiatives which are nested within the four critical components that we are initiating in tandem within Army Transformation today.

1. Critical Component: changing the culture and mindset of how the Army integrates intelligence—change the methods and means of how we collect, move, process, analyze and use intelligence. Change how we think of intelligence starting with the soldier, continuing through all echelons of our Army.

To change our culture and mindset, we must first change our behaviors through better training and career experiences. First and foremost, we must institute the mindset that every soldier is a sensor. There are three main premises to soldier as a sensor: (1) Soldiers on the ground have always been the best information collectors, and they must recognize themselves as such. OEF and OIF have Actionable Intelligence provides commanders and soldiers a high level of shared situational understanding, delivered with the speed, accuracy, and timeliness necessary to operate at their highest potential and conduct successful operations. Actionable Intelligence provides commanders and soldiers a high level of shared situational understanding, delivered with the speed, accuracy, and timeliness necessary to operate at their highest potential and conduct successful operations. Recent operations have shown that there are no frontlines. All soldiers and facilities are at risk of attack. Soldiers must become highly conscious, trained observers and reporters, aware of the value of reporting their experiences, perceptions and judgments so the right person, at the right time, can make the right decision to accomplish the mission—we must give them the means to do so. (2) We must move operational units from a passive (waiting to receive intelligence with which to take action) to an active role in pursuing intelligence. Commanders must acknowledge that every operation is also an intelligence operation. Some of the most valuable intelligence comes from soldiers on point or on patrol. This “Fight for Knowledge”—create your own luck—begins prior to operations and extends through the post-operation phases indefinitely as long as the Nation has a vested interest in the region. (3) Lastly, we need to see ourselves as the enemy sees us.

#### *Focus Area Critical Initiative: Red Teaming Capability*

Red Teaming has two significant components. First, we need a base cadre trained to think like terrorists, insurgents and paramilitaries. Soldiers who have been trained as Red Team cadre will represent the full spectrum of today's potential opponents (state and non-state actors), ensuring blue force planners truly reflect the asymmetric threat, the contemporary operating environment and the second and third order effects of blue and red force actions. Second, we need a baseline of geographic expertise to provide regional subject matter experts. Our initiative starts with organizing a core Red Team capability within INSCOM and in each of the Theatre MI Brigades. This will expand to include the establishment of a Red Team University for training within the Army Education system.

2. Critical Component: Improved battlespace capabilities organic to soldiers and units—the capability of the soldier to sense and understand his environment—integrating the soldier into the network.

Situational awareness on the complex battlefield of the 21st century demands greater access to information with increased fidelity at every level, starting with the soldier. Battlespace capabilities represent what is in the hands of our soldiers or organic to their unit. Reporting by individual soldiers will be digitized at the point of origin with FBCB2. Soldiers will be able to better share what they observe, realizing the every soldier is a sensor concept. Connecting the soldier to the network will revolutionize information flow in both directions. For units, this means increasing our ability to rapidly build and deploy modular intelligence packages that satisfy the unit's needs, to include providing regional expertise to tactical forces in an Army with a global and joint mission. We also need to connect the local sensors to the national networks and both the sensors and the soldiers to the analytic base, DCGS. We will ensure that service intelligence interdependencies are identified and leveraged.

3. Critical Component: Overwatch support to engaged units—assisting the soldier by sensing and analytically overwatching his battlespace, providing awareness over the broader environment in which he is or may operate.

The concept of overwatch encompasses those capabilities that enable the soldier or unit to reach out beyond their immediate area of operations via a collaborative network centric environment. Overwatch is part of a larger transformation where we are changing from a vertical, echeloned approach, to a collaborative enterprise approach. Overwatch provides the soldier on the ground with situational awareness of the environment that influences his mission. The soldier also senses his local environment and shares that high fidelity data with the rest of the force. The Intelligence Community then optimizes the capabilities and talents of intelligence professionals from the tactical through strategic level, active, Reserve, civilian, and contractors, across every discipline, to provide the shared situational understanding every soldier and leader requires to understand and control their battlespace.

*Focus Area Critical Initiative: Analytical Overwatch*

Our next initiative, analytic overwatch, is an improved way of operating that commits theater resources to tactical support, providing tailored products (vice megabytes of information) to decisionmakers at the tactical echelon. Analytic overwatch enables direct support intelligence capabilities, providing collaborative and tailored support down to the maneuver brigade and battalion echelons.

*Focus Area Critical Initiative: Project Foundry*

Complementing overwatch, Project Foundry is an initiative that will assign a portion of the Army's intelligence soldiers in the tactical force to duty locations with organizations where they will conduct live environment intelligence operations. These soldiers will be assigned to Maneuver UA and UE, but their duty location (including their families) will be at geographically dispersed locations away from their parent units.

*Focus Area Critical Initiative: Information Dominance Center*

The INSCOM IDC is a state-of-the-art operational intelligence organization. The IDC has pioneered processes and methodologies for timely situational awareness and analysis of complex networks of individuals and organizations that can be shared across the intelligence enterprise from national to tactical. The IDC has established extension nodes in each theater and continually provides direct support to our deployed units around the globe. A direct capability "spin-off" from the IDC is Project Morning Calm. This project is an example of our rapidly evolving intelligence system in support of a theater combatant commander—virtually a test bed for concepts that may have application in all theaters. Morning Calm creates an all-inclusive intelligence system capable of rapidly sharing and visualizing intelligence and all disparate data, from the numerous collection systems and agencies, tactical through national and combined. The first iteration of Morning Calm was recently installed and tested in Korea.

*Focus Area Critical Initiative: Pantheon Project*

Today, any new technology that has intelligence applications, such as demonstrated in Project Morning Calm, must be promptly incorporated into the intelligence system. To that end, we are implementing a rapid fielding capability through the creation of The Pantheon Project. The project will bring together a team of 10–12 elite, world-class individuals from business, academia, and government to address and solve the hardest technical problems, creating technological or procedural solutions for the enhancement of tactical through national intelligence echelons.

4. Critical Component: A network centric environment that enables and glues these concepts together—the tools, comms, collaboration, access to data, integration and enhanced visualization capabilities that make the framework; connecting the soldier (battlespace) to higher echelons and analytic centers (overwatch).

The intelligence enterprise is a function of information transparency made possible by a common network which integrates people with shared databases, advanced analytical tools, knowledge centers, and sensors/collectors that are accessible by all. An assured network centric environment is the key enabler and the glue that binds all these concepts. Actionable Intelligence is dependent on the network as the communications backbone to set the conditions for a collaborative environment.

*Focus Area Critical Initiative: Begin fielding of an interim Distributed Common Ground System—Army capability this year*

The objective DCGS-A will fuse and integrate data from all collectors and sources. DCGS-A is the centerpiece of the future intelligence framework and is the enabler

for all operations at all echelons from the UA to national. DCGS-A is already a future force Program of Record (POR) originally designed to field a capability in fiscal year 2008. Starting now, we have already begun accelerating DCGS-A to the field in a spiral development approach. Interim DCGS-A fixed site capabilities are being fielded to the theater intelligence brigades and groups. We will expand this effort and provide the Army with increasing capabilities that correspond to improvements in automated fusion and information visualization technologies down to the maneuver battalion level.

#### ARMY INTELLIGENCE TRANSFORMATION SUMMARY

Army Intelligence is changing in all aspects to adapt faster than our adversaries. We are increasing our tactical collection in all intelligence disciplines, with particular emphasis on HUMINT. We are working with Task Force Network to form a network which creates the framework connecting the soldier to the strategic level. We are changing how intelligence information is reported and disseminated throughout this operational and intelligence network. We are updating our processes to provide all echelons, down to the individual soldier, with access to shared situational awareness.

Focus Area Actionable Intelligence is the vehicle for Army Intelligence transformation. Evolutions in sensing, fusion and analysis will solidify the foundation of the Army's ability to conduct knowledge-based operations. Our emphasis is on addressing current operational mission requirements, while maintaining first advantage in capabilities. Technology spiral insertions will continue to improve and optimize our intelligence capabilities. At its very core, however, the conduct of intelligence analysis remains a human endeavor. Technology creates possibilities; humans turn possibilities into realities.

Creating Information Age processes will allow us to leverage the essence of the vast amounts of information available today. This will radically change the way we do business and dramatically improve the commander's and soldier's understanding of the battlespace. The soldier, whether intelligence analyst or operator, will interface directly, and in near real-time, with the information required for current operations. We will ingrain the concept that "Every Soldier is a Sensor" (a contributor to and a consumer of the global intelligence enterprise). Tactical commanders nearest to the fight will leverage modular, tailored packages to develop intelligence, while being supported by a network of analytic centers providing overwatch.

#### CHALLENGES

Our Greatest Challenges are:

(1) Changing the Culture and Mindset of the entire Army: We must institutionally change the culture and mindset of the Army on how we collect, report, disseminate and use intelligence. Our challenge is to ingrain the changing concepts throughout not only the MI Branch, but throughout the entire Army.

Training: Our soldiers must be trained on the perishable skill of conducting combat surveillance and reporting the critical elements he observes within his environment. Soldiers must become highly conscious, trained observers and reporters, aware of the value of reporting their experiences, perceptions, and judgments so the right person, at the right time, can make the right decision to accomplish the mission. This mindset starts with our institutional training and builds with unit training and experience.

Structure: Army leadership at all echelons must institutionalize a narrowing of the gap between intelligence and operations. Collecting intelligence must become a natural occurrence of any operation that we conduct, from logistics resupply to an actual combat patrol.

Doctrine: Furthermore, we must move operational units from a passive (waiting to receive intelligence with which to take action) to an active role in pursuing intelligence. Commanders must acknowledge that every operation is also an intelligence operation. Some of the most valuable intelligence comes from soldiers on point or on patrol. This 'Fight for Knowledge' begins prior to operations and extends through the post-operation phases indefinitely as long as the Nation has a vested interest in the region. Lastly, we need to see ourselves as the enemy sees us: through Red Teaming. Our challenge is to build these constructs into our structure.

(2) Breaking down the existing policies and procedures for data access: Within the Army, as well as the Intelligence Community, we must revamp the current processes and procedures that hinder our ability to rapidly move data, information, and intelligence throughout all echelons. Some policies limit our ability to access essential data bases while some limit our ability to move classified information to the tactical echelons and soldier. Others limit the sharing of certain types of data or intel-

ligence. Another challenge is our tactics, techniques and procedures that we continue to use that were instituted prior to the advent of computers and current technology enablers. Existing TTP dictate an echeloned, stovepiped approach to requesting and passing intelligence. This slows and seriously limits the sharing or integration of data and knowledge, thereby impeding intelligence integration within the Intelligence Community and slowing and negating rapid intelligence sharing with the tactical echelons and soldier—impacting the ability to rapidly execute operations.

(3) Funding our Intelligence Transformation initiatives: Over the last several months, the Army has validated our Actionable Intelligence initiatives as enablers of modularity and larger Army transformation. This is a first and critical step toward achieving these goals. The next and equally critical step is committing the funds to implement these initiatives. To date, we have the funding required to begin pursuing our initiatives for DCGS-A. At the same time, we are reprioritizing within the Army budget to fund emerging requirements within the Information Dominance Center such as Red Teaming, Project Foundry, and The Pantheon Project. In the past, we have sustained minimal IDC operations with the assistance of Congress and the OSD. We are very appreciative of your support. We are convinced that the advancements we have made over the last couple of years are a tremendous return on that investment. However, the IDC's participation in recent and ongoing operations and the lessons learned from Project Morning Calm have expanded its mission focus and support concept. The IDC has become integral to the battle rhythm of engaged forces and should therefore be funded as a formal Army program vice dependence on supplementals and congressional aids. We are also working with the USDI and the agencies on support for those functions and capabilities that support the joint fight.

#### OUR FOCUS, THE SOLDIER

Our focus is on the soldier of an Army that is fighting a war, resetting our forces, and transforming to the future. Our dynamic environment features new technologies, nontraditional missions and unconventional, elusive adversaries requiring radically different operating capabilities, tactics, techniques and procedures. Focus Area Actionable Intelligence is the vehicle for Army Intelligence transformation. Evolutions in sensing, communications, fusion and analysis will solidify the foundation of the Army's ability to conduct integrated and shared knowledge-based operations. Our emphasis is on addressing current operational mission requirements, while maintaining first advantage in capabilities—constantly focused on connecting the network—linking the soldier. At its very core, however, the conduct of intelligence analysis remains a human endeavor. Technology creates possibilities; humans turn possibilities into realities.

#### CONCLUSION

The Army is at an historic crossroad. Our dynamic environment features new technologies, non-traditional missions and unconventional adversaries requiring radically different operating capabilities, tactics, techniques, and procedures. In response to this, the Army is transforming from top to bottom, even while engaging in combat operations, fighting an adversary unwilling and unable to challenge us directly, yet able to adapt to take advantage of real or perceived weaknesses. The funding provided is critical and essential in enabling our soldiers to continue to take the fight to the enemy.

In closing, our common goal is to provide the best possible capabilities for our soldiers. We all know that our soldiers—our young men and women, America's finest—deserve nothing less than the best we all can do and provide for them. On behalf of the entire Army Intelligence Community, we appreciate your interest and support as we fight the current war, adapt our current force to the fight, and continuously transform—always building towards a future force. Thank you for allowing me the opportunity to address you in this forum and we sincerely appreciate your resolute support to our greatest assets, our soldiers.

Senator ALLARD. We'll hear now from Admiral Porterfield, Director of Naval Intelligence.

#### **STATEMENT OF REAR ADM. RICHARD B. PORTERFIELD, USN, DIRECTOR OF NAVAL INTELLIGENCE, HEADQUARTERS, U.S. NAVY**

Admiral PORTERFIELD. Good morning, Mr. Chairman, and thank you for the opportunity to appear here today.



I want to tell you that the Navy, like the Services of my other colleagues, is in the midst of two really fundamental changes. First, we're in the middle of transformation, and we're also fighting a war, and that's simultaneously. I think that what we, in the Navy, see there are great challenges to this and we also see great opportunities to effect long overdue changes.

In the recent active combat, the Navy found that we were deficient in our HUMINT; and, in closed session, I want to go over what we're intending to do about that.

We also found that we were deficient in our ability to support naval special warfare, which we believe could well be, in the future, one of the very first naval assets to be employed in any conflict, because the nature of the war that we're facing has greatly changed.

The third thing that we've found is that we've gotten very good at what we'll call "time-critical strike," the ability to hit fixed or mobile targets on the land mass, but it's now time for the Navy to focus on the maritime domain because of some of the challenges that we see in the future in that arena. Antisubmarine warfare is a key issue for us, and it's driving some of the things that we're looking for.

I also want to point out that, to use a saying that the highway administration uses, "speed kills." The Navy's focus is on getting our capability to the fight quickly, to accomplish the movement of intelligence to warfare commanders and our warfighters on the ground and at sea and in the air very quickly. That's one of our fundamental tenets, and it is something that we're working very hard on.

I also want to say that there's a great deal of interdependencies among the service capabilities and the joint capabilities which are currently under discussion, and I think that's important for you to realize that they all have to work together in order to be optimized. We're talking about persistent surveillance often, but we also need to think about persistent analysis and the ability to move the data to the right place at the right time quickly.

I want to also mention to Senator Nelson that Scott Speicher is a continuing high priority for the Department of the Navy. We continue to examine every shred of evidence and working with our DIA and Iraqi Survey Group colleagues, Major General Dayton, that continues to be a very high focus for Secretary England and Admiral Vern Clark.

Senator BILL NELSON. I just met with General Dayton.

Admiral PORTERFIELD. Yes, sir.

With that, sir, I want to yield the remainder of my time, and will be glad to take questions either here or in closed session.

[The prepared statement of Admiral Porterfield follows:]

PREPARED STATEMENT BY REAR ADM. RICHARD B. PORTERFIELD, USN

#### I. INTRODUCTION

Mr. Chairman and members of the subcommittee, thank you for inviting me to testify. I welcome the opportunity to once again appear before you to discuss the state of Naval Intelligence. I want to express my sincere gratitude for your support of the United States Navy. At no time has that support been more vital than it is today, as we continue to fight a global war on terrorism, projecting decisive joint power across the globe. Naval Intelligence is engaged worldwide, meeting the cur-

rent intelligence demands of our joint forces while transforming to meet future joint ISR requirements. The Naval Intelligence program is consistent with Dr. Cambone's Defense Intelligence Goals and we continue to work closely with the USDI and the other Services to shape an effective and efficient Defense intelligence program. Reflecting the priorities set forth in my annual guidance as Director of Naval Intelligence, I will focus today's remarks on three topics:

- Naval Intelligence support to global operations;
- Lessons learned and transformational initiatives;
- Navy ISR Roadmap and program highlights.

## II. NAVAL INTELLIGENCE SUPPORT TO GLOBAL OPERATIONS

I am proud to inform you of the outstanding work being performed by the Navy's intelligence team around the world. A trademark of the Navy is being forward deployed and fully engaged in providing for the Nation's security. Today, there are two Carrier Strike Groups (CSGs) and four Expeditionary Strike Groups (ESGs) deployed globally. Each deployed force possesses fully manned afloat intelligence centers and ships signals exploitation spaces, which provide imagery and targeting analysis, cryptanalysis, and ISR battle management support to U.S. and Coalition Naval Forces. In addition to our CSG and ESGs Nuclear-Powered Attack Submarines (SSN) are forward deployed, providing both strike and ISR capability and Navy EP-3 and P-3 AIP aircraft are providing multi-sensor intelligence collection in support of joint and coalition forces. Forty percent of our manpower is invested in joint intelligence, providing maritime intelligence expertise to each of our combatant commanders.

Here at home, the Office of Naval Intelligence (ONI) is heavily engaged on a daily basis providing critical maritime intelligence to support the multi-agency homeland security effort, focusing its maritime shipping, cargo and proliferation expertise on denying terrorists the use of the seas. In the past year, ONI has partnered with the U.S. Coast Guard's Intelligence Coordination Center and established a 24-hour a day, 7 day a week, National Maritime Watch in direct support of Northern Command's (NORTHCOM) mission to ensure the maritime homeland defense of the U.S. Each day, we report on vessels of interest en route U.S. ports, identifying those that pose a potential national security threat. At the same time, ONI continues to be instrumental in taking the fight to the enemy by providing critical intelligence support to global Maritime Interdiction Operations (MIO).

## III. LESSONS LEARNED AND TRANSFORMATIONAL INITIATIVES

Our experiences during recent combat operations have highlighted the need for enhanced Naval Intelligence expertise in several areas, particularly collection management, HUMINT, and support to Special Warfare. In addition to revitalizing Navy HUMINT, the Chief of Naval Operations (CNO), in his Guidance for 2004, directed us to focus on improving our global maritime awareness and merchant ship tracking capabilities, and delivering advanced ISR capabilities within FORCEnet. He also directed us to support these efforts through improvements to the development and integration of our total force of civilian, active, and Reserve intelligence personnel. In response, we have commenced a number of transformational initiatives, while modifying our fleet exercises to better stress and test our skills in joint operations.

### A. HUMINT Transformation

There is a continuing need, consistent with the President's budget, to grow and sustain the Navy HUMINT capability. ONI has strengthened and will continue to expand its HUMINT capability with emphasis in Interrogation of Prisoners of War (IPW) and Civil Maritime Collection Operations.

Demonstrating the total force concept, 69 naval reservists have been mobilized since September 11 to support these HUMINT efforts. ONI overt HUMINT collectors have accompanied the U.S. Coast Guard on more than 3,250 boardings of foreign vessels since September 11. We are transitioning this capability from a force consisting primarily of mobilized reservists to a more permanent full-time capability.

### B. Maritime Intelligence Transformation

The ONI continues its Maritime Intelligence transformation—both in its support to the global war on terrorism and in its emerging role of providing direct support to theater naval forces. ONI continues its efforts to improve the detection, identification, and tracking of merchant shipping activity worldwide. To support national and theater maritime intelligence requirements, ONI has strengthened its strategic relationships with numerous regional partners. These maritime information exchanges

provide valuable regional maritime information, much of which is not available from other sources. ONI's Automated Merchant Reporting System is a critical component of this effort.

#### *C. Fleet Intelligence Transformation*

ONI is also transforming its support to the fleet. As we learned during OIF, combat operations often placed a high demand for imagery exploitation capabilities in support of targeting and battle damage assessment (BDA). Recognizing the need to improve imagery analysis support to forward-deployed forces, the Navy and ONI established the Fleet Imagery Support Team (FIST). FIST will provide direct support to deploying battlegroups by increasing our imagery analysis capabilities afloat, our reachback capabilities for analysis of tactical imagery ashore, and the ability of forward-deployed forces to leverage ONI's analytical and technical expertise. FIST will improve the near real-time imagery support required to support Time Critical Strike missions. Specifically, FIST will improve the CSG and ESC's ability to task, process, exploit, and disseminate theater and tactical ISR sensor data such as that obtained from Broad Area Maritime Surveillance (BAMS) UAVs and other developmental and existing systems.

Another priority mission for ONI is analysis of the worldwide submarine threat. ONI has focused its efforts in two areas: assessing submarine capabilities, and projecting future force levels to support DOD and the Office of the Chief of Naval Operations (OPNAV) acquisition community requirements. ONI also devoted considerable analytic effort to develop projections of worldwide naval systems and weapons capabilities over the next 20 years. These detailed projections are used to support wargaming scenarios, which in turn, support the acquisition decisionmaking process.

#### *D. Total Force Transformation*

As I mention earlier in my testimony, recent combat operations have highlighted the need for enhanced Naval Intelligence expertise in collection management, HUMINT, and support to Special Warfare. In response, we have aligned our training and manpower management processes to better support the development, tracking, and application of these capabilities.

A key milestone of this effort is the development of the Intelligence Officer Professional Qualification Program (PQP), which responds to OIF lessons learned and a recently completed intelligence officer job task analysis. We are expanding our Additional Qualification Designator (AQD) program to track the core skill areas mentioned above in addition to our existing Navy Targeting Officer and Joint Targeting Officer AQDs. Similarly, we are refocusing Active and Reserve Intelligence Specialists (IS) toward the core skill areas of imagery analysis, strike warfare, and operational intelligence, and coding all enlisted billets to accurately reflect current and future skill requirements. This is part of our broader effort to evolve the IS rating into an Advanced Technical Field.

The Navy continues to face major challenges in accessing and retaining sailors with the right skills to meet emerging requirements—both ashore and afloat. Ensuring the Fleet is manned with the right people with the right skills is as important as equipping them with the latest technology and tools. Naval Intelligence is leading the way in the CNO's broader efforts to revolutionize training in the Navy and achieve full integration of our active and Reserve components.

Last summer, we established the Center for Naval Intelligence in Virginia Beach, Virginia as one of several learning centers supporting the CNO's Revolution in Training initiative. This center is responsible for all Navy intelligence training, education, and professional development, including oversight of the Navy and Marine Corps Intelligence Training Center (NMITC) in Virginia Beach and the Fleet Intelligence Training Center (FITCPAC) in San Diego. We are embracing new technologies and applying human performance development concepts from the science of learning. We are revising every aspect of our current training processes and incorporating computer-based training and realistic team trainers that form the centerpiece of training at the Center for Naval Intelligence as well as the Center for Cryptology at Corry Station in Pensacola.

This year, with the support of the Naval Reserve Intelligence Program leadership, we developed a Naval Intelligence Community Roadmap to guide our officer and enlisted professional development and advance the full integration of our active and Reserve components. Based on requirements validated by Fleet Forces Command, this roadmap helps us define skill requirements to meet emergent missions, tailor skill training to specific job tasks, and make sure Reserve component capabilities augment or complement active component capabilities.

The most important personnel action concerns our initial accession contracts for active-duty sailors. Beginning this fiscal year, we shifted to a 6-year obligation, Advanced Technical Field enlistment contract. These sailors will report aboard ship fully trained and qualified to support fleet combat operations from day one. For example, starting with the October 2003 class, sailors awarded the strike warfare qualification code arrived in the fleet certified to develop aimpoints for precision-guided munitions.

#### IV. ISR ROADMAP AND PROGRAM HIGHLIGHTS

##### A. Navy ISR Transformation

FORCEnet is the centerpiece of the Navy's transformation to a network centric environment. The vision of FORCEnet is a single, enterprise-wide, open architecture. It will reach across all programs to create a continuous information environment across the Navy and will serve as the key enabler for Sea Power 21 capabilities. Naval Intelligence intends to remain at the forefront of this initiative and ensure our intelligence programs are fully integrated.

At the heart of Navy's plan to integrate a net-centric ISR capability into FORCEnet is the DCGS. The DCGS family of systems will not only support integration of tactical, theater and national ISR capabilities into Naval warfare operations, but it will also ensure that a distributed network of Navy ISR sensors can contribute directly to a Joint common operational picture via the Global Information Grid (GIG). The Navy recently created a single program office for the Joint Services Imagery Processing System (JSIPS) and the TES to facilitate incorporating these programs into our DCGS effort. Although primarily focused on supporting strike warfare and time critical targeting, the objective is for the Navy's DCGS to support all naval warfare domains. This initial consolidation is the first step toward developing a Navy DCGS capability that is compatible with the DCGS Integrated Backbone (DIB) and the Joint DCGS architecture.

I am a co-lead in the FORCEnet project, primarily to ensure that the Navy's ISR capabilities and investments remain a core component of Navy Network Centric Operations (NCO). Furthermore, the Navy staff has recently established an ISR branch within the warfare requirements directorate, headed by a naval intelligence flag officer. This move is an acknowledgement that ISR has become a critical warfighting component.

##### B. Airborne ISR Programs

Last year at this time the Navy had not yet decided on the way ahead to replace the aging EP-3 ARIES II system. I am pleased to report this year that a Navy variant of the Army's ACS will meet the Navy's requirements for a manned multi-INT airborne ISR capability. Navy ACS will exceed current EP-3 capabilities, while promising improved airframe reliability and reduced operating costs. Navy ACS will be tailored to support the Navy's warfighting and ISR concept of operations (CONOP).

Persistent surveillance over open-ocean and littoral areas remains critical to establishing and maintaining comprehensive battlespace awareness in a dynamic maritime environment. This is especially true when potential adversaries are equipped with long-range anti-ship cruise missiles. The high altitude endurance (HAE) BAMS UAV is designed to provide the necessary persistent ISR capability required by CSG, ESG, and the Joint Forces Maritime Component Commander (JFMCC) to support Joint Operations. Navy will acquire two modified Global Hawk UAVs as part of a Maritime Demonstration to rapidly inject a persistent UAV into the Fleet. These systems will be used to develop the CONOPs and procedures required for introduction of BAMS UAV. BAMS UAV will complement other Navy maritime surveillance systems such as the P-3 and Multi-Mission Maritime Aircraft (MMA).

For tactical reconnaissance, the Shared Reconnaissance Pod (SHARP) represents a significant increase over the legacy TARPS system, adding a robust night capability, high bandwidth data-link, increased standoff, and an all-digital imagery system. SHARP is scheduled for formal operational evaluation (OPEVAL) in late fiscal year 2004, but experienced a very successful early operational capability (EOC) deployment aboard U.S.S. *Nimitz* during OIF.

ACS, the BAMS UAV, and other Navy ISR systems, will be designed to "plug in" to Navy DCGS/FORCEnet, allowing rapid distribution of ISR data to Navy and Joint users, and key Navy and Joint analysis nodes for further processing. Naval forces will also be able to access ISR data, from joint assets such as Global Hawk and Army ACS, via the DCGS architecture.

### *C. Surface and Subsurface ISR Systems*

The Maritime Cryptologic Strategy for the 21st Century (MCS-21) is our vision for integrating existing cryptologic capabilities with advanced technologies to create a single, scaleable, interoperable SIGINT system. Spiral E of SSEE, the first step toward achieving the MCS-21 vision, will provide improved front-end sensor capabilities by incorporating easily reconfigurable software receivers. Also included are radio direction finding and Information Warfare capabilities and an embedded scenario-based training package. The result is significantly enhanced threat detection and identification for warship commanders.

As the threat environment evolves, submarines remain a potential high-interest threat. Accordingly, Navy continues to invest in ISR capabilities that will monitor emerging undersea threats and provide cueing to tactical ASW assets.

For our submarines, the latest Submarine Electronic Support Measures (SSEM) equipment will provide an advanced capability for both open-ocean and littoral environments. The system includes a sensor suite, processing and analytical tools to provide self-protection, situational awareness and, when augmented by special additional gear, an undersea ISR capability.

Taken together, these airborne, surface and subsurface systems provide the flexible, scaleable, comprehensive ISR capability required to meet current and emerging threats and support naval, joint, and coalition forces at the tip of the spear.

### V. CHALLENGES

My greatest challenges fall into two basic categories:

- (1) Determining the optimum skill mix and distribution of personnel between the analytical capabilities needed afloat with those that can be accomplished via reach-back;
- (2) Identifying the emerging sensing and processing capabilities that affect this mix.

Ultimately the success of our ISR vision, and its contribution to naval warfare, depends on the individual sailor and whether we've given him the skills and tools to do his job well. Innovations in digital classrooms and team trainers are clearly a positive step but the trend toward more technologically advanced ships manned by smaller crews complicates the task ahead. To achieve our goals we will have to do more things, and do them better, with fewer people or make huge strides in our remoting capabilities to facilitate improved ashore/afloat collaboration. Equally challenging is our ongoing effort to determine the best mix of ISR sensors Naval Forces will need to fulfill warfighting requirements, and then correlate this sensor mix with appropriate air, surface, and subsurface manned and unmanned platforms. Realistically, we will have to pursue our vision on both fronts.

### VI. CONCLUSION

In conclusion, I want to thank this committee and Congress for the consistent support you have provided Naval Intelligence. I've talked today about our current support to global operations of all types, our response to lessons learned from recent combat operations, and our efforts to build the right naval ISR system of systems at the right cost, while developing our human capital to effectively utilize those capabilities in support of naval and joint forces going into harm's way. Our priorities are reflected in our fiscal year 2005 budget submission and form the foundation of our ISR roadmap and transformational strategy. I hope I have conveyed the breadth and depth of naval intelligence's contribution to ongoing operations. Our transformation efforts will shape a future Navy intelligence capability that is an even more powerful enabler to joint and naval forces, providing the Nation with unmatched maritime intelligence capabilities.

Senator ALLARD. Thank you.

Now we'll call on Major General Sams, U.S. Air Force Director of Intelligence, Surveillance, and Reconnaissance.  
Welcome.

### **STATEMENT OF MAJ. GEN. RONALD F. SAMS, USAF, DIRECTOR OF INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE, DEPARTMENT OF THE AIR FORCE**

General SAMS. Mr. Chairman and members of the subcommittee, it's my honor to talk to you about Air Force intelligence.

It was almost a year ago that an Air Force Global Hawk, flying over a suspected Iraqi surface-to-air missile (SAM) site, sent missile data information and the pictures it took to a ground site at Beale Air Force Base, California. That ground site took that information and pumped it immediately to an imagery analyst in Nevada. Within 2 minutes after those images were received, the analysts discovered the Iraqi SAM site. The data was then sent, within 10 minutes, to the Combined Air Operations Center (CAOC); and 57 minutes after that Global Hawk saw that Iraqi SAM site, a B-2 was reprogrammed with a precision weapon and took out the site.

On that same day, a Predator was flying, looking for missile transporters, and actually spotted some Iraqi tanks in a tree-line. Predator video was also sent back via our distributed systems to analysts back in the States, who sent the information to the CAOC, who then sent it to the airborne aircraft; and 17 minutes after the initial Predator video was transmitted, those tanks were destroyed.

Now, these two examples illustrate what we talk about in terms of the results of Air Force ISR, which is a crosshair and a target. It also serves to illustrate where we're going in ISR, because time-critical targets require rapid movement of information and rapid targeting of weapons, and our first priority to the combatant commander will always be to prosecute those targets through global persistent surveillance, through a combination of ground and airborne and space-based sensors and systems.

To better make our ISR capabilities available to combatant commanders, the Air Force has aligned ISR and command and control (C-2) wings under a single-numbered air force, 8th Air Force, which is responsible for their training and readiness. At the headquarters level, we've established a Deputy Chief of Staff for Warfighting Integration, who's responsible for Air Force C-2 and ISR interoperability at the technical and operational levels.

The examples I referred to earlier also illustrate the success of networking our information. Through use of reachback to distributed analytic centers, we have access, in a matter of seconds, to analysts worldwide. During Operation Desert Storm, the DCGS at Langley Air Force Base was deployed forward, and so was the one at Beale. Today, if we deployed those two centers forward, it would cost us about 17 C-5s, and would cost us about a million—maybe up to \$50 million to move all that equipment, and not to mention the people. Today, through reachback, the Air Force doesn't have to deploy all of those people forward. The technology allows us to leverage our expertise from a myriad of analysts around the world from our Active and Reserve Forces. We also substantially reduce the number of people that we have to move forward, or, as we like to say, "When possible, we'll move digits and not people."

As demonstrated during OIF, our U-2 continues to be an extremely capable multi-intelligence platform. It is a true workhorse today. It is not the same U-2 that was flown by Francis Gary Powers during the Cold War. In fact, airframe-wise, it's one of our youngest, and we believe it'll remain viable until at least the year 2025.

Now, a few years ago, it was my honor to be the commander of the 55th Wing at Offutt Air Force Base. My RC-135 fleet was ex-

tremely busy then; it is extremely busy now, and the Rivet Joints continue to be our heavy-lift SIGINT platform with an airframe that should last through at least 2023.

We are continuing our spiral development of our Global Hawk to a multi-INT platform. Though the Global Hawk is still in development, it provided over 28,000 images during OIF, and over 3,000 of those helped prosecute time-critical targets.

Predator continues to be a success. All the Predators that we purchase now will be capable of delivering weapons. We are also developing our Predator B into a true hunter-killer aircraft capable of automatic target queuing and prosecuting time-critical targets.

Our investment in the DCGS, version 10.2, will provide the communications backbone that will help all Services plug into this, and use their own communication architectures so that we can spread data when and where it's needed.

Our investment in SBR and Space-Based Infrared System is significant, but it's critical to global persistent surveillance. When these systems are operational, it will mean that the enemy really has no place to hide, day or night or in adverse weather. Our vision is to give the enemy no place to hide, to know what the enemy is doing all the time, to be inside the enemy's decision cycle so that we can engage anytime, in any place at our choosing.

Thank you very much for my few minutes, and I look forward to discussing this with you later.

[The prepared statement of General Sams follows:]

PREPARED STATEMENT BY MAJ. GEN. RONALD F. SAMS, USAF

#### OPENING REMARKS

Mr Chairman, distinguished members of the committee. It is an honor to provide you my vision of Air Force ISR and also to discuss some important lessons learned from recent, and ongoing, military operations. As we work closely with the newly established USDI, we see a future in which Air Force ISR will greatly contribute to our Nation's ability to dominate the enemy's information space. Our first priority is to provide the combatant commanders with the means to prosecute global and persistent surveillance from a combination of airborne, ground, and space-based capabilities. To that end, the Air Force realigned its ISR and command and control (C2) wings under a single numbered Air Force commander, responsible for all ISR training and readiness. The realignment of Air Force ISR under 8th Air Force in 2002 was a total force initiative—providing the combatant commander with a coherent, integrated force capable of meeting tomorrow's information intense environments. Our outlook for the future also calls for significant increases in operational integration across all domains—joint, allied, and coalition partners. In 2002 we also established a Deputy Chief of Staff for Warfighter Integration to ensure a coherent look at all Air Force ISR and C2 interoperability at the technical and operational levels. In addition to improved methods for interoperability and information sharing with our partners, we see great opportunities for achieving information dominance through increased networked centric intelligence operations and broadband reachback to our distributed analytical centers. Based on lessons learned from ongoing conflicts, our analytical centers are also adapting to provide the warfighters with "predictive" intelligence through multi-INT approaches to include extensive analysis of open source information. For example, assessment of terrorist and proliferator use of civil aviation, whether compiling basic intelligence or identifying potentially hijacked aircraft threats, will require an unprecedented degree of integration of open source and classified data streams. We have explored the means to fully integrate these data sources with promising results. Last, our vision for information dominance is founded on a balanced investment and modernization strategy that leverages off of industry's key technological advances in unmanned aerial vehicles, radar and signals intelligence processing, access to commercial imagery satellite communications, and distributed networking capabilities.

On the eve of OIF, the Air Force was prepared to provide rapid, comprehensive, and precise targeting to support the joint warfighter. This capability was supported via a joint multi-intelligence framework (SIGINT, IMINT, and MASINT), which in turn provided an actionable battlespace picture to the warfighter. The plan achieved regional ISR persistence, with distributed operations, and incorporated reach-back to provide more flexibility and analytical capability. One of the extraordinary results achieved from this synergy was the ability of the Joint Forces Air Component Commander (JFACC) to engage multiple targets per sortie, vs. the WWII-era standard of hundreds of sorties per target.

As I provide an operational overview of some of our major ISR programs, I will also highlight some of the lessons learned during recent and ongoing operations. Some of our most significant accomplishments involve the integration of multiple ISR assets to produce an effective ISR architecture. Recent operations have found us integrating information from our mainstay ISR fleet, including the U-2 and the RC-135; and our UAV programs, Predator and Global Hawk with space based ISR systems. Much of this integration has been made possible by our continuing evolution of the DCGS. In addition to our traditional ISR capabilities, we are continuing our efforts to improve and integrate MASINT and Non-Traditional Intelligence, Surveillance, and Reconnaissance (NTISR) into our ISR collection and processing capabilities.

Beyond the hardware, no discussion of ISR capabilities would be complete without addressing what the Chief of Staff of the Air Force refers to as “the heart of our combat capability” . . . our airmen. Air Force intelligence personnel continue to perform in a consistently outstanding manner in a number of ongoing joint and coalition operations. Before closing my overview of Air Force ISR, I will address some of our ongoing force management efforts, which assist in defining, renewing, developing, and sustaining our intelligence force structure.

#### ISR ARCHITECTURE

The integration of theater and national ISR assets during OIF reflects the tremendous potential of truly integrated ISR to transform combat operations. The Air Force pursued several programs to integrate air and space ISR capabilities into the CAOC. A key integrating program for theater ISR is the Air Force DCGS. The operational effectiveness of network-centric operations was validated during Operations Enduring Freedom and Iraqi Freedom. The DCGS weapon system provided the combatant commander a global, distributed architecture for theater ISR via a combination of reachback and forward deployed systems and personnel. This reachback effort included TPED for Predator, Global Hawk, and U-2 missions. We teamed with the national agencies, and other mission partners to provide unprecedented ISR coverage throughout OEF and OIF. The success of both of these operations was enabled by integrating ISR asset capabilities into the DCGS network, which allowed us to cross-cue information among platforms and sensors, and pass on fused actionable intelligence to commanders and strikers in real time to execute coordinated, synergistic combat operations.

In fiscal year 2005 we begin fielding the Block 10.2 Multi-INT Core baseline of DCGS. The centerpiece of this baseline is the DCGS DIB. The DIB is the foundation of the DOD DCGS transformation to net-centric operations. The Services cooperatively developed DIB technical requirements to ensure joint interoperability and enable net-centric operations. The Services have committed to being interoperable with the DIB, and a DOD-level governance process has been established to ensure compliance. The improvements to our space and terrestrial infrastructure, modernization of our legacy baseline, and the integration of the DIB, will provide the combatant commander unprecedented access to decision quality information for operations anywhere on the globe.

As warfighters, we focus engagement-based intelligence with the concept General Jumper calls “cursor on the target.” Cursor on the target does not imply that we will always use intelligence to destroy enemy equipment or attack their forces. In some cases, we put the cursor on the target to simply learn more by focusing collection with ISR sensors.

At the heart of this approach is predictive analysis. Based on what we know of terrain, weather, enemy training, capabilities and habits, we focus our application of military intelligence on what is possible and likely. We cannot chase an infinite set of possibilities, but rather, must frame the problem for our decisionmakers. Leveraging this predictive analysis tied to a network centric ISR architecture through DCGS enables us to optimize limited ISR assets.

While we’ve spoken to the architecture, these successes aren’t possible without the specific programs and people making it happen.



## U-2 DRAGON LADY

The U-2 continues to be the most capable multi-intelligence platform in our inventory, as was demonstrated during OIF. We are in the final stages of a decade long upgrade program to the aircraft, sensors and data links and we are in the initial stages of fielding this new capability. We will be fielding additional capability over the course of the next couple of years as systems complete operational testing and evaluation.

The U-2 continues to be at the forefront of Air Force reconnaissance, enhancing our strategic competencies for warning, providing data needed for time sensitive targeting and enhanced data links speeding information to multiple users. The U-2 is a lynchpin in Air Force efforts to network and integrate ISR into warfighter C2 and will remain a viable and necessary ISR asset.

## RC-135 RIVET JOINT/COBRA BALL/COMBAT SENT

The RC-135 fleet continues to be in high demand by the unified combatant commanders in support of the global war on terrorism, because of its state of the art airborne collection system, and adaptability.

Baseline modifications allow us to adapt quickly to time-critical unified combatant commanders' requirements, and field capabilities as a direct result of lessons learned from OIF and OEF into future baselines.

We currently project the RC-135 fleet to remain viable well into the 2020s and perform the role of heavy-lift SIGINT in the Air Force's scaleable, networked ISR architecture. This long-term viability is, in part, based on two major upgrades to the fleet that enhance the overall reliability, maintainability, and sustainability of the platforms. The re-engining effort to equip all RC-135s with CFM-56 engines has already paid huge dividends with zero maintenance write-ups for the new engines during Operation Iraqi Freedom. Another vital modification, well underway, is the modernization of our cockpit instrumentation and systems. This major upgrade will provide the infrastructure to meet new International Civilian Aviation Organization (ICAO) requirements for global air traffic and navigation.

The global war on terrorism has dramatically expanded our target. Mission ready enlisted aircrews remain a challenge with the expanding operational tempo required to meet the worldwide support requirements. We continue to address these issues in order to meet future combatant commander requirements. We have maximized linguist-recruiting accessions and filled our training pipeline. We are addressing retention through offering higher re-enlistment bonuses, continually working to alleviate operations and personnel tempo issues, and refining airborne linguist career field management to maintain our current pool of linguists.

Even as we work to increase the availability of the RC-135 fleet and address our manning challenges, the fleet will remain a Low Density/High Demand (LD/HD) asset. Combatant commanders across the globe depend on the capability RC-135s bring to their theaters. To meet this challenging LD/HD situation, we will continue our high priority efforts to maximize the utility of all available assets, enhance aircrew training across the board and continue to improve management of our linguist career fields. Further, to counter rapidly emerging threats, we will continue updating RC-135 collection systems to ensure warfighters are armed with accurate, timely and actionable intelligence, surveillance, and reconnaissance.

## MQ-1 AND MQ-9 PREDATOR

We continue to develop the Predator system into fiscal year 2005. Most noteworthy is our development of the MQ-9 Predator B 'Hunter-Killer' aircraft capable of automatically cueing and prosecuting critical emerging Time-Sensitive Targets (TSTs) with a self-contained hard-kill capability to include precision-guided munitions. This will provide a persistent, armed reconnaissance multi-mission UAV operating higher and faster than the MQ-1 and with a greatly increased payload capacity.

## RQ-4 GLOBAL HAWK

As it did for OEF, the Global Hawk deployed in support of Operation Iraqi Freedom and was able to provide critical support for the warfighter. The persistence, flexibility, and responsiveness of this system were once again proven successful, where it demonstrated the capability to image anywhere in the area of operations. Its ability to deviate from pre-planned flight tracks combined with its simultaneous carriage of EO, IR, and synthetic aperture radar (SAR) sensors offers the flexibility to respond to dynamic environmental conditions to achieve the best available collection.

The Global Hawk is a tremendous addition to our ISR fleet capability. The persistence and long dwell capabilities preclude an enemy's sanctuary from reconnaissance or surveillance. It also affords theater commanders the ability to plan for and execute a standard, pre-planned collection mission while also having plenty of time available to execute ad-hoc retasking for emerging or time-critical targets. As we field the Global Hawk fleet over the remainder of this decade we will achieve significant improvement in our ISR capabilities.

#### REACHBACK

Reachback provided desired support without the costs and risks to personnel and equipment associated with the deployment. Prior to the war, Air Combat Command established the Expeditionary Intelligence Group (EIG), a CONUS-based organization. The EIG enabled the CFACC to call upon analytical and operational support from over 1,000 personnel—not all in one location—coordinated by one organization. EIG assistance also reduced forward deployment requirements, and eliminated the commensurate requirements for base operating support, force protection and airlift.

#### *Commercial Imagery*

The Air Force has recognized the improvements in the quantity, quality, and timeliness of Commercial Imagery, and has established a robust Commercial Imagery capability to support the full spectrum of warfighter requirements. The 480 Intelligence Wing serves as the Combat Air Forces premier reach back intelligence production center for the global war on terrorism, and is the Air Force's primary producer of Commercial Imagery products.

The first Air Force Controlled Image Base (AF-CIB) production in support of OEF was completed within 3 days of September 11. This made possible production-enabled mission planning for current operations.

#### *Non-Traditional Intelligence Surveillance and Reconnaissance*

NTISR was developed to address the need for additional ISR collection by tasking aircraft to record weapons system video of selected targets. Aircraft with targeting pods traditionally used for targeting purposes, were tasked to locate, identify, and assess potential/emerging targets and Battle Damage Assessment (BDA).

#### FORCE DEVELOPMENT AND MANAGEMENT

During OIF, deployment of Air Force intelligence professionals jumped to a level almost 10 times greater than the pre-September 11 numbers. In our new "steady state" operations, the number of intelligence personnel deployed at any given time is still far in excess of that experienced before September 11. This dramatic increase in our expeditionary commitments has placed tremendous stress on our ISR workforce. This is especially true with LD/HD skills such as targeting, collection management, imagery intelligence, and cryptologic-linguists in selected language groups. However, we are making strides in addressing this issue: in fiscal year 2004, Air Force Intelligence received additional authorizations to support stressed career-fields, and for fiscal year 2005, AF Intelligence will receive more authorizations. Additionally, our Air Reserve component continues to make vital contributions to meeting Air Expeditionary Force requirements.

We are diligently working to improve the skills of our enlisted, officer, civilian, and Air Reserve component intelligence professionals by developing career-long Force Development models based upon the Air Force Chief of Staff's direction. This effort involves taking a hard look at our initial skills, advanced skills, and follow-on unit mission readiness training for the total force. In our initial skills courses, we are reviewing combatant command requirements to ensure entry-level airmen have the skills necessary to meet both steady-state and wartime requirements. For advanced skills training, we have developed two new courses, the ISR Operations Course and the Intelligence Master Skills Course, which enhance the operational proficiency and leadership skills of mid-career intelligence professionals. At the unit level, Intelligence Formal Training Units provide airmen the right training at the right time on specific weapon systems and mission areas. In addition, we will continue to leverage educational opportunities such as the Joint Military Intelligence College and the NSA internship programs designed to enhance the technical and leadership skills of our total force.

The Air Force's vision for improving intelligence analysis involves a three-pronged approach of professional development, analytic tool development and technology recapitalization. In the area of professional development, the Air Force Intelligence division sponsors the Quality of Analysis program, which is focused on providing analysts with deeper analytical area and functional expertise. The individually tailored training may involve travel to foreign countries for geographic area familiarization;

attendance at academic seminars, scientific symposia and equipment exhibitions; and visits to Federal and private research centers and laboratories. At the National Air and Space Intelligence Center (NASIC), there is a professional development program for the entire workforce, incorporating education and training, mentoring, tradecraft, and a civilian career development program to ensure that analysts have the skills they need to serve our country to their highest potential. The second front on which the Air Force is working to improve our intelligence analysis capabilities is analytic tool development. We are working with the other Services to develop products and models in common languages and databases that the entire Intelligence Community can use. Examples include IDMATs, which characterized foreign Camouflage Concealment and Deception; Joint Dynamic Information Operations Decision Environment (DIODE), a links and nodes analysis program; and the Threat Modeling and Analysis Program (TMAP). The Air Force is also working to operationalize digital production, following standards set by the Intelligence Community Chief Information Officer. The Digital Production program at the NASIC, when complete will allow smart data mining and instant access and search capability on thousands of products. Finally, we are exploiting Open Source Intelligence (OSINT). The events of September 11 and the A.Q. Khan proliferation network have abolished all doubts that civil aviation is a vital logistical node for terrorists and proliferators. Air Force Intelligence has begun to focus on the full spectrum of this problem in order to provide combatant commanders the requisite intelligence to support military operations. This must include the capability to provide a worldwide, 24/7, real-time air picture. Assessment of terrorist and proliferator use of civil aviation, whether compiling basic intelligence or identifying potentially hijacked aircraft threats, will require an unprecedented degree of integration of open source and classified data streams. We have explored the means to do this and the results are promising indeed. I regard it as one of the most vital services Air Force Intelligence can provide to the Nation.

We are continuously reviewing our manpower utilization and the operational requirements placed upon our intelligence force to ensure they have the knowledge, skills, and abilities to meet our National Security objectives.

The global war on terrorism continues to highlight the need for skilled linguist to meet ongoing operational requirements. To amplify this LD/HD capability within the Air Force we have increased the crypto-linguist training pipeline and number of personnel trained in less commonly taught languages critical to global war on terrorism operations. Earlier this year we teamed with the Air Force Manpower Agency to identify requirements using the Air Force's new Capabilities Based Manpower Determinants process. This process takes a holistic end-to-end look at weapon system and mission area operations to determine force structure needed to provide required warfighting capabilities. This process will ensure our combatant commanders have the full complement of intelligence resources to meet their needs in peace, crisis, and war.

#### SHORTFALLS

JFCOM noted, in their final OIF Lessons Learned document, that BDA did not keep up with the speed of operations. The Air Force initiated the Air Force Assessment Task Force (AFATF) to address a number of the issues listed in this document as it pertains to BDA. The AFATF has developed a flight plan towards Effects Based Assessment and is addressing service and joint issues using the DOTMLP (Doctrine, Organization, Training, Materiel, Leadership, Personnel, Facilities) construct, identifying a number of near-, mid- and long-term solutions.

JFCOM identified ISR as "A capability that demonstrated considerable effectiveness" within their OIF Lessons Learned Report. However, they also highlight the need for better enemy force locations once hostilities began and to measure the effects in a manner that supports operational objectives.

The Air Force's ability to determine enemy composition and disposition in support of targeting is being addressed partially via the Air Force's Predictive Battlespace Awareness (PBA) Implementation Plan. The plan, which has captured some of the work of the PBA Integrated Product Team (IPT), is looking at DOTMLP solutions to improve—and expedite—the continuous generation of tailored Intelligence Preparation of the Battlefield (IPB) products. Some of these solutions will be material in nature and will improve our machine-to-machine interfaces, thereby expediting the IPB products used by our targeteers and others within the Air and Space Operations Center (AOC). In short, a true PBA capability, once fully implemented, will enable U.S. Air Force intelligence personnel to determine enemy composition and disposition in a more timely fashion, thereby supporting our ability to strike, maneuver and generate desired effects within the battlespace.

## CONCLUDING STATEMENTS

The Chief of Staff of the Air Force has stated “the sum of all the parts of our ISR capability ends with a cursor over the target. . .,” and today’s Air Force ISR programs are providing the warfighter with the tools to achieve this. The Air Force is committed to bringing the best ISR capabilities to the fight and providing the intelligence capabilities that address both the national security demands of today and of the future. The Air Force is proud of its contributions to the defense of the Nation, and is especially proud of our people who are working every day to support the global war on terrorism. We appreciate this opportunity to provide you an overview of our programs—our successes, our challenges, and our efforts to ensure that the Air Force ISR programs continue to provide the capabilities needed for our Nation’s security.

Senator ALLARD. Next I’d like to call on Mr. Decker, Director for Intelligence, United States Marine Corps.

**STATEMENT OF MICHAEL H. DECKER, DIRECTOR FOR INTELLIGENCE, HEADQUARTERS, UNITED STATES MARINE CORPS**

Mr. DECKER. Thank you, Mr. Chairman and members of the subcommittee. It’s a pleasure to be here to talk about Marine Corps intelligence, surveillance, and reconnaissance today.

Marine Corps ISR exists to support expeditionary maneuver warfare, and specifically it exists to support the commanders’ planning, decisionmaking, and then execution of expeditionary maneuver warfare. We believe that the program that we’ve fielded in OIF, and what we continue to field in our fiscal year 2005 program, allows the commander to build a comprehensive ISR network that gives him the necessary degree of tactical self-sufficiency, while allowing him to reach back and network into theater and national sensors. We think that we’re also an enabler of joint operations because we’ve put these capabilities forward, and that using the tenets of horizontal integration, we’re building our capabilities to be networked into the larger ISR network of the DOD and national intelligence agencies.

We build our systems specifically to support both maneuver and targeting. I appreciate the chairman’s comments at the beginning that the goal here is to support both targeting and decisive military operations, because I believe sometimes we overemphasize sensor-to-shooter in targeting, and not spend enough time on the difficulties involved in supporting maneuver to get to the targets on the ground.

We believe that although these systems are networked to support horizontal integration, they are networked as part of a larger joint environment, that our systems are tactical by nature and that they’re funded in TIARA because they really are the commanders’ systems, and the commander has ownership of his intelligence marines and his intelligence systems. The information that they may be presenting to the commander may be something they got through reachback or through networking in that joint and national arena, but what they’re doing is, the commanders’ intelligence marines are presenting to him information to support maneuver and targeting, and they’re part of his warfighting team, and we think that’s the best way to do this.

We have some great examples from OIF. We provided, prior to D-Day, a lot of reachback support to the marine division. The Marine division’s initial guidance was to attack due north through Al Kut, through a Republican Guard division, and then essentially

hook left towards Baghdad. The Marine Corps Intelligence Activity, under DOD federated intelligence production, was asked to study the terrain in between Al Kut, where the Baghdad division was, and the terrain between there and the Army forces that were maneuvering further west up towards Baghdad, to determine if a division could maneuver in that area. We determined that that could be done, and that was instrumental in the division commander crafting his plan to move forward by swinging well to the west of that Baghdad infantry division. So that ability to reach back to the combination of the Marine Corps Intelligence Activity and the national agency's support allowed us to help them make that decision. Part two of that decision, though, was based on the ability to eliminate any threat from the Baghdad division to be able to reach out and touch the right flank of the Marine division as they bypassed Al Kut. That was truly a community effort in targeting to support the 3rd Marine Aircraft Wing. Those precision-target coordinates, hundreds per day, came from the National Ground Intelligence Center (NGIC). There was actually a click-on, on the home page down in Charlottesville, where the Marine wing, over in Al Jabar in Kuwait, would click on the NGIC home page in Charlottesville, and it said, "Click here for today's 3rd Marine Air Wing targets." Same thing for NGA, in St. Louis; same thing for the Joint Intelligence Center at CENTCOM, which many of those targets actually came, as General Sams said, from the Air Force DCGS here in the CONUS. But by the time they were done, the 3rd Marine Aircraft Wing had eliminated every tank, every vehicle, and every artillery piece that could have impacted the right flank of the division, and the division commander was fairly comfortable in his ability to maneuver past Al Kut and head towards Baghdad in a much more expeditious manner than he would have been able to had he been forced to fight through that Baghdad infantry division to get across the Tigris River. So we think that that whole ability to provide the commander that capability to use his own assets and to reach back to national worked for us there.

We also, as Dr. Cambone mentioned, created persistence surveillance for the commander by attaching to the commander a large number of UAVs, tactical HUMINT teams, what we call CI/HUMINT exploitation teams. We attached to the commander SIGINT support teams, Trojan Spirit devices down to the regimental level that allowed our SIGINT marines to reach back to NSA for interactive SIGINT support, so that both the tactical SIGINT collectors and what national was getting would support—and I'd like, in closed session, to tell you more about how we bring that capability together to do some rapid targeting, and especially now, in OIF-2.

But I think the bottom line for us is that we were able to put together in a rudimentary fashion where we're headed for horizontal integration, because I take the comment of the Members that persistent surveillance also brings an analytical challenge, it brings an information-overload challenge. I think we were able to pull that together to support the maneuver units both in OIF-1 and now again in OIF-2, and I think we'll be able to talk more in closed session, but I think we're on our way there, sir.

I think the Intelligence Marines are doing a great job. We're extremely proud of them; they're extremely pumped up when you hear them—they talk to us on e-mail every day, and they're just out there building targets and supporting maneuver on a daily basis. I just couldn't be prouder of what they're doing on a daily basis. If anything, they're probably providing more targets on a daily basis than we can actually go after, just because they're doing such a great, thorough job for us.

Thank you, sir.

[The prepared statement of Mr. Decker follows:]

PREPARED STATEMENT BY MICHAEL H. DECKER

Thank you Mr. Chairman and members of the Strategic Forces Subcommittee of the Senate Armed Services Committee for requesting Marine Corps participation in this hearing on our intelligence programs and lessons learned from recent military operations. It is an honor to be here to discuss Marine Corps ISR programs funded by TIARA funding and the JMIP.

During this past year, the Marine Corps, both active and reserve, engaged in operations around the globe. Our successes in executing Expeditionary Maneuver Warfare (EMW) depended on our Marine Air Ground Task Forces (MAGTFs) having a reach-back capability to leverage and populate theater, service and national intelligence repositories, while maintaining a tactically self-sufficient ISR network to support forward MAGTF fire and maneuver. We fund our ISR systems, generally referred to as the Marine Air Ground Intelligence System (MAGIS), in TIARA because although networked and joint enabling, they are integral to our tactical combat command elements and maneuver units.

Marine Corps ISR exists to support EMW and, specifically, the commander's planning, decisionmaking, and execution. Our previous Marine ISR modernization efforts emphasized increased collection and analytical capability at the maneuver level of command and reach-back support from theater, service and national organizations. We have sought, and we continue to seek, to transform how we fight by providing unprecedented ISR capability and access to all of our combat echelons—from our small units such as companies all the way to the Marine Expeditionary Force (MEF), our largest MAGTF. These efforts led to a number of successes during OIF—I that I would like to share with you.

Marine commanders task organized their organic intelligence support to adapt to the speed and distance of their specific operations. We augmented our Marine Divisions with support from Pioneer UAV squadrons, topographic/IMINT specialists and Trojan Spirit-Lite intelligence communications systems to provide responsive ISR support and secure mobile connectivity. Likewise, we augmented the next lower maneuver echelon, the Regimental Combat Teams (RCTs), with a wide array of ISR enhancements such as Dragon Eye UAVs, CI/HETs, and SIGINT Support Teams (SSTs) to improve their organic collection capability; Trojan Spirit IIs to provide secure mobile connectivity; and data link receivers for aerial sensors such as the Pioneer UAV, the Navy's P3 and the Litening POD on the AV8-B Harrier to provide them with a "bird's eye" view of the battlefield. These enhancements provided the capability to conduct immediate and responsive ISR operations such as employing the Dragon Eye UAV to safely scout the first crossing of the Tigris River; using SSTs to identify and neutralize enemy call for fire nets during the second crossing of the Tigris River; and capitalizing on CI/HET assets embedded with Light Armored Reconnaissance units to facilitate a prisoner of war rescue north of Baghdad.

The Marine Corps Intelligence Activity (MCIA), the Marine Corps' Service intelligence center, provided Federated Production support before D-Day including lines of communication (LOCs) and inundation studies. This intelligence preparation of the battlespace (IPB) support was critical to 1st Marine Division receiving approval to bypass Al Kut and strike toward Baghdad on secondary routes. MCIA serves as the parent command for Intelligence Marines on joint duty and in combat support agencies. Consequently, MCIA connects Marines assigned to defense agencies, Regional Security Operations Centers (RSOCs), Joint Intelligence Centers (JICs), and Joint Reserve Intelligence Centers (JRICs) and enables them to work as a virtual team in support of warfighting and combat development intelligence requirements.

The MEF's organic Intelligence Battalion coordinated reach-back targeting support by leveraging the NGIC, the NGA St. Louis, and the Joint Intelligence Center Central Command (JICCENT)/CFACC in order to populate automated target folders for strikes conducted in theater. These target folders enabled advancing Marine

Forces to rapidly strike and destroy artillery units of an Iraqi Division between Al Kut and Baghdad, thereby denying the enemy the ability to use these assets to hinder our advance.

As these stories illustrate, TIARA funded MAGTF ISR assets are embedded in command elements and maneuver units. We have technical specialists in all-source fusion, SIGINT, CI/HUMINT, reconnaissance and UAV operations that can be task organized to support any given commander's situation based upon his specific requirements. Enhanced intelligence support to the Marine maneuver unit in combat enables more efficient utilization of theater, service and national collection assets while simultaneously enabling commanders to focus their organic collection assets on their immediate areas of responsibility. We believe these organic capabilities should remain in TIARA so the commander will have an ownership stake in not only making them part of his team in combat, but in preserving and enhancing these capabilities during Service planning, programming, and budgeting.

Our EMW concept continues to be used with great success today in Iraq and Afghanistan for force protection, security and stability operations, and counterterrorist operations. Our commanders are using actionable intelligence to conduct focused raids and attacks on a daily basis in Iraq and Afghanistan. When only partial information exists, commanders are conducting patrols and "cordon and knock" operations to generate intelligence. Actionable intelligence requires not only commanders who are empowered and willing to act, but also the presentation of target development information by Marines who are viewed as part of the team. Both focused raids and patrols are examples of commanders viewing their ISR Marines as trusted members of the command element's decisionmaking process. It is very rewarding to routinely read in commanders' Situation Reports things like "forces throughout the AO positioned to conduct focused, intelligence driven operations against the enemy;" "execution time based on actionable intelligence;" and "continue to gather and refine targetable intelligence."

I would like to thank the subcommittee for your support of Marine Corps intelligence. I have tremendous pride in the contributions made and the hard work being done by our ISR marines. With your continued support, intelligence will remain the indispensable precursor to and enabler of MAGTF operations. The Marine Corps remains focused on organizing, training, and equipping our forces to best support Marine commanders, combatant commanders and national decisionmakers throughout the spectrum of conflict. Incorporating recent experiences, increasing our forces' integration with joint capabilities, exploiting the flexibility and rapid response capabilities of our units, and preserving the adaptability of our marines will collectively lead to more options for the combatant commanders. I look forward to addressing our successes in detail in closed session.

Senator ALLARD. Let me now call on General Wurster, Director for Intelligence and Information Operations, the U.S. Air Force.

**STATEMENT OF BRIG. GEN. DONALD C. WURSTER, USAF, DIRECTOR FOR INTELLIGENCE AND INFORMATION OPERATIONS, U.S. SPECIAL OPERATIONS COMMAND**

General WURSTER. Thank you, sir. On behalf of General Brown, thank you for the opportunity to be here today.

As you're aware, high-quality intelligence is essential for us to be able to do the types of things that we do. Special Operations Command (SOCOM) depends on the architectures that the other Services bring to the fight. We work on unique SOF aspects of that sort of thing. But Global Hawks and the national satellite architecture and the NSA and the Director of the Central Intelligence (DCI) bring capabilities on which we absolutely depend to get the right information down to our shooters.

One of the key lessons that we have learned, and it's something that we have long culturally believed in Southern Command, is that persistent observation of a target is essential. We virtually always have somebody watching a spot before we go there. In the longer term, as we look at proliferation of weapons of mass destruction and the intercept of terrorists globally, we need to know,

Where does that vessel go when it leaves this place? We need to know, What time did that vehicle move? We need to know, Tell me when that door opens so that I can act. That requires a range of sensing and information that runs the full spectrum from the national and strategic to a person on the street that's accomplishing a specific task for us.

We're working with the partners, our partners in the Intelligence Community, to continue to evolve an excellent system to orient it more towards the current needs. But in today's world, we need to be able to locate and track a specific person. We need to find a person, and then dwell on that individual to gain information about who he interacts with, where he goes, what he does, until we arrive at the point where either we want to pick him off or take him out to achieve our objectives. Tagging, tracking, and locating is important not only for knowing where our own forces are, but where others are.

SIGINT is essential to us, and I'll be happy to discuss some anecdotes of that more in the closed session, one of which includes the fact that the NSA saved my life, and I'll tell you that story.

But we need to be able to detect, intercept, geo-locate, monitor any device that these bad guys are using, and our national experts are on the job at that. We're partnering with the NSA to do the piece of that that is logical for SOCOM to contribute to, and we are moving forward in that regard.

The other one is CI/HUMINT. You've heard it on several occasions. In SOCOM, we believe that humans are more important than hardware, and there are some things that just require us to put a right person with the right skill in harm's way to gain a piece of information that's essential for us to do that. Anecdotally, our Defense HUMINT teams that, coupled with the Joint Special Operations Command (JSOC) forces and other national forces that were forward, were an ad hoc arrangement, where we borrowed from DIA the right kind of people to do the right types of work, and a small group of people was able to pull information—cultural information, familial ties, and things like that. That group of people assembled the information that allowed our shooters to find the spider hole that had Saddam Hussein in it. It can't be overstated the importance of that.

Horizontal integration, the USDI already mentioned, but SOF needs to be connected into that. We recognize that there's a need for a unique piece of information that we have that may have strategic importance to other organizations, need to get back into that architecture. We do that fairly well now with SIGINT, but as we look at increasing the number of UAVs we have and—our human architecture needs to, likewise, support that effort to arrive at a large—the large picture and perspective that many can use. Data sharing is essential. We need to be hooked into it.

I'd like to thank the agencies that we work with routinely, the NSA, NRO, NGA, DIA, and CIA. General Brown has made the comment that the relationships with those organizations have never been better. They're embedded in our staff down at SOCOM, and we have tremendously positive relationships at the working level with them.



In summary, I have some other things that I would like to share with you in closed session.

Thank you for the opportunity to be here today.

[The prepared statement of General Wurster follows:]

PREPARED STATEMENT BY BRIG. GEN. DONALD WURSTER, USAF

Mr. Chairman and distinguished members of this subcommittee, it is my privilege to report to you on the state of the United States Special Operations Command (USSOCOM) intelligence organization and capability. Our men and women represent the finest quality of intelligence professionals and they continue to make progress in the global war on terrorism through their dedication, sense of urgency, and commitment.

We continue to work to ensure that our combat forces are provided with the best intelligence available and have access to our most advanced intelligence systems, as well as connectivity to the national agencies, the Services, and other combatant commands. In addition we strive for superior quality in our intelligence force as we train, organize, and equip our people.

The USSOCOM commander's guidance is clear. We are to maintain a steady focus on the global war on terrorism, ensure the readiness of our forces, and continue transformation efforts to match our capabilities with tomorrow's battlefield requirements. We are doing this by teaming with conventional forces, coalition partners, and other agencies, as well as by strengthening intra-departmental cooperation.

GLOBAL WAR ON TERRORISM

High quality intelligence is a force multiplier which enables our SOF warriors to achieve strategic success despite their limited numbers in operations in Iraq and Afghanistan. Accurate and timely intelligence is a critical resource as we pursue counterterrorist efforts in the Horn of Africa and the Pacific region as well. Intelligence preparation of the battlespace assured SOF successes early in OIF and is contributing to continued success in rebuilding the infrastructure of Afghanistan while hunting down Taliban and al Qaeda leadership.

*Iraq*

A fused intelligence picture provided through the use of all intelligence disciplines enabled SOF to establish early footholds and successful operations in Northern Iraq. The intelligence gleaned allowed SOF to play significant roles to prevent the Iraqi V Corps in the north from reinforcing Baghdad. It helped us maintain a clear picture of the threat poised by missiles in western Iraq, and assisted in the seizure of key airfields, the capture of Iraqi senior leadership, and the prevention of a potential ecological disaster through the intentional destruction of oil wells and infrastructure. Finally, it allowed SOF to secure potential chokepoints that could impede our main axis of attack and control sensitive areas for investigation and analysis. These are poignant examples of SOF leading the fight with the speed and security afforded by responsive, timely intelligence. The establishment of Task Force Viking to conduct Combined Joint Special Operations Task Force-North operations in Northern Iraq assured early teaming with Kurdish military and political leaders. Accurate intelligence assessment of the threat in the Bashur region enabled SOF to help secure the airfield and allowed the 173rd Airborne Brigade to conduct their night drop into Bashur to deliver nearly 1,000 airborne troops in the largest airborne drop since WWII. This set the stage for the 173rd Airborne Brigade, and eventually the 26th MEU, to link up and team with Kurdish Peshmerga enabling coordinated offensive air operations against 700 entrenched Ansar Al Islam fighters.

The Combined Joint Special Operations Task Force-West denied western Iraq as an area of operations from which Iraq could conduct offensive missile strikes against neighboring countries, averting a potentially wider regional conflict. Intelligence provided by SOF teams, fused with that of national agencies and regional Joint Intelligence Centers coupled with reach-back operations to exploitation/analysis centers of excellence, enabled U.S. forces to rapidly secure and control this strategic ground in Iraq.

In the south, high quality intelligence provided an accurate picture of the threat to aircrews as they inserted SOF teams deep into Iraq. These teams provided precise and timely reconnaissance of key locations and allowed conventional ground commanders a more accurate picture of the battlefield contributing to the rapid speed of advance in the ground campaign. National intelligence assets identified strategic oil infrastructure targets in the littoral areas and enabled Naval Special Warfare Task Group to secure these objectives and provide the initial conduit for

seaborne humanitarian aid to Iraq. This successful operation which secured all targets within 40 minutes secured critical nodes and averted the threat of an intentional ecological disaster in the region.

SOF, supported by multi-source intelligence collection, continue to aid the efforts to eliminate Fedayeen Baath party loyalists, former Iraqi military and political leaders, foreign fighters, and other terrorist cells who seek to attack U.S. forces as they attempt to thwart stability within Iraq.

#### *Afghanistan*

Our SOF supporting the combined operations in Afghanistan continue to rebuild the infrastructure, establish positive rapport with the local populace, and eliminate Taliban, al Qaeda, and other terrorist elements. Tip offs from various intelligence sources have led to successes that eliminate weapons caches and explosives, as well as the terrorists and their leaders.

#### LESSONS LEARNED

To provide a better and more predictive picture of the battlefield against terrorists, our processes are being refined based on the lessons we have learned. With the assistance of the USDI, national agencies, geographic combatant commanders, and our components, we are adjusting our intelligence sight picture to improve the way we conduct intelligence activity. Some of the key lessons learned are described below.

**Persistent ISR.** We need to provide our commanders with higher fidelity information to allow them to detect, locate, and track small groups or individuals. The USSOCOM global war on terrorism mission requires the ability to conduct ISR on a focused and uninterrupted basis in order to find, fix, and finish terrorist threats. We are working with partners in the Intelligence Community to adjust intelligence requirements and methods to the new paradigm.

Our highest priority requirement is to attain the capability to find a specific person who presents a threat to our country, our values, and our way of life. We must be able to locate and track this High Value Target (HVT) in permissive and non-permissive environments, then dwell on the HVT from the point of discovery through decisive action to capture or kill the individual. We also seek the ability to integrate deployable tagging, tracking, and locating (TTL) technology to defeat the threat. Ultimately, we seek to expand the capabilities of remote, unmanned devices that could be added to this network. The ISR architecture must be flexible and adaptive to meet the challenges of the future.

**CI/HUMINT support to SOF.** The global war on terrorism has produced an increase in demand for professional HUMINT and CI resources. Dedicated HUMINT and CI resources have proven to be one of the greatest contributors to the successes enjoyed by SOF to date. While all recognize the need for more and better HUMINT, SOF's relationship to these intelligence providers is central to success in the hunt for terrorists. USSOCOM is working closely with the Under Secretary of Defense for Intelligence and we support the HUMINT Reformation Initiative. We look forward to the outcome of this effort which holds positive indicators for the future.

**Training and Manning.** You have heard USSOCOM repeat the consistent opinion that "Humans are more important than Hardware." We must produce high quality technical systems while remembering that success or failure depends upon trained intelligence specialists. We place high priority on our efforts to recruit, train, and retain talented intelligence professionals. The capture of Saddam Hussein is directly attributable to the dedicated work of a small group of analysts who put together the pieces of a puzzle, coupled with the SOF warriors who were able to find him in his spider-hole. Recruitment, training, and retention are essential ingredients in our ability to perform similar feats in the future.

**Horizontal Integration.** To achieve integrated persistent ISR that provides actionable intelligence results from the development of an overarching integrated intelligence architecture including a collaborative environment with tools, databases and collection systems that specifically support the global war on terrorism. The IC, under the guidance of the DCIA and the USDI, is focusing on this issue. As a result, the interagency and DOD interaction and cooperation continue to improve. USSOCOM has been fully engaged in these planning efforts. USSOCOM recognizes that the al Qaeda network is adaptive, flexible, agile, and capable of inflicting harm on U.S. interests at anytime. Our intelligence architecture must be equally adaptive and flexible, and provide timely, relevant, and precise information to defeat this threat. USSOCOM is actively participating in the IC efforts to improve Horizontal Integration. USSOCOM seeks integration in any network or execution architecture that enables key participants in the global war on terrorism to collaborate effectively. As the IC, law enforcement agencies, coalition partners, and other sources

assemble information on terrorists, we must be able to improve the security of our forces and citizens.

#### INTERAGENCY SUPPORT

I would like to take this opportunity to make a statement about the support USSOCOM has received from NSA, NRO, NGA, DIA, and Central Intelligence Agency. Liaisons from each of these agencies are embedded in the USSOCOM intelligence team. The close relationship established and maintained by these committed patriots is crucial to our successes to date. General Brown, Commander, USSOCOM stated that "the current relationship is the best it has ever been" and USSOCOM would not have enjoyed the success we have had without the support of these agencies.

#### TACTICAL INTELLIGENCE AND RELATED ACTIVITIES AND JOINT MILITARY INTELLIGENCE PROGRAM

USSOCOM's TIARA and JMIP budget request ensures that USSOCOM will continue to provide the intelligence support required to conduct the global war on terrorism and fulfill title 10 responsibilities for ensuring component readiness. Our TIARA and JMIP investment strategy provides the means to leverage national and theater intelligence capability and acquire SOF peculiar systems required to meet the unique mission needs of the SOF warfighter. As we continue to fight the global war on terrorism, we must continue our modernization program in concert with other Department of Defense and interagency organizations. I will first address our TIARA programs followed by our JMIP needs.

Joint Deployable Intelligence Support System—SOCOM Research, Analysis, and Threat Evaluation System (JDISS—SOCRATES)—JDISS—SOCRATES is an umbrella program that acquires and supports garrison sensitive compartmented information (SCI) automated intelligence system (AIS) requirements for Headquarters USSOCOM, its components, subcomponents, mission support units, supported geographic combatant commands, and Theater Special Operations Commands (TSOC) in conducting global war on terrorism, OIF, OEF and peacetime missions. Capabilities include access to national, theater, and SOF-specific databases; news service and message traffic; softcopy imagery processing, imagery product archiving and dissemination; analyst-to-analyst electronic mail and chat communications; Intelink and Intelink-S web servers; and secure voice and facsimile. In short, all those sources and possessors of intelligence which enable operators to engage the enemy decisively are delivered to SOF operators over JDISS—SOCRATES. The \$30 million requested in fiscal year 2005 will provide the architecture and infrastructure required for the global war on terrorism and will assist in our current efforts to incorporate national mandates and maintain full interoperability with the DOD Intelligence Information Systems standard architecture and with each theater Intelligence Data Handling System.

Tactical Local Area Network (TACLAN)—TACLAN provides a deployable command and control system capable of sharing operations, intelligence, and administrative information throughout USSOCOM, the Service components, supported geographic combatant commands, TSOCs, and deployed task forces in all security domains. The TACLAN is an extension of JDISS—SOCRATES that provides a nearly seamless transition of intelligence system connectivity from home station to combat operations. TACLAN consolidates tactical command, control, computers, communications and intelligence (C<sup>4</sup>I) requirements from previous USSOCOM programs and centralizes management of USSOCOM's tactical C<sup>4</sup>I requirements in order to integrate current and future tactical AIS initiatives into a single efficient information management system/architecture. Based on lessons learned from OEF and OIF, and other operations, tactical intelligence communications and dissemination capabilities are mission essential to special operations. The total TACLAN fiscal year 2005 budget request is \$20 million. The fiscal year 2005 TIARA portion of the TACLAN budget request, \$2 million, provides critical deployable, tactical SCI connectivity and functionality to prosecute the global war on terrorism and future contingencies.

Special Operations Joint Interagency Collaboration Center (SOJICC)—We have continued to improve our network-centric, collaborative capability, the SOJICC. The SOJICC uses advanced computing capabilities and nodal analysis to rapidly collate, process, display, and disseminate relevant information for timely decision support. The SOJICC information technology is scalable in design and corresponds to current industry standards in data mining, data retrieval, data warehousing, knowledge management, pattern recognition, speech recognition, machine learning/neural networking, audio and video capture, parallel/distributive computing, visualization and search optimization. SOJICC's data mining and other capabilities complement the

efforts of DIA's Joint Intelligence Task Force for Combating Terrorism. Over the last year, SOJICC has been instrumental in populating a standardized, collaborative terrorist database that is replicated to the combatant commands. This effort is essential for producing a common intelligence picture that allows combatant commanders to link and track terrorist personalities and events throughout the world. The total \$9 million fiscal year 2005 budget request for SOJICC will fund and maintain the current analytical efforts in support of the global war on terrorism and allow the program to identify and test new software technologies to improve future support.

USSOCOM is now the Program Manager (PM) for the Counterproliferation Analysis Planning System (CAPS). As one of the prime users of CAPS, it was logical for us to assume the PM duties and guide the fiscal year 2005 \$16 million effort. This effort continues development of the CAPS database, intelligence support procedures, information technology systems planning, system integration and interface control, software development, and development of analytical tools and system interfaces. CAPS will continue to be an invaluable tool in the future as the United States struggles to curtail the proliferation of weapons of mass destruction.

Joint Threat Warning System (JTWS)—Uniquely provides credible threat warning and intelligence information to special operations forces. JTWS will provide this critical SIGINT capability tailored for all components. The following SOF legacy SIGINT systems were incorporated into the JTWS family of systems in fiscal year 2002: Improved SOF SIGINT Manpack System (ISSMS), Privateer, and Silent Shield. We are replacing these legacy systems with JTWS ground, air and maritime variants which will provide an increased capability against the sophisticated forms of communications that are present worldwide. The legacy SOF SIGINT systems have demonstrated the high value of tactical SIGINT during many recent missions involving SOF. The acquisition and fielding of JTWS is key to providing enhanced situational awareness, force protection and time sensitive intelligence for targeting to supported SOF elements. SOF SIGINT capability has routinely proven itself in ongoing combat operations throughout Afghanistan and Iraq. Intelligence gained through the use of SOF SIGINT capabilities is shared with other intelligence collectors and the national community.

Direct Support Operations (DSO) on Air Force Special Operations Command aircraft, using Silent Shield equipment, have proved indispensable to the safety of SOF airborne attack and infiltration operations.

The Privateer systems have provided key intelligence to SEALs during numerous Maritime Interdiction Operations. During OIF, Navy tactical cryptologic support operators were critical to supporting all phases of Navy SOF operations, including the critical opening hours of the war while supporting those forces tasked to secure Iraq's key infrastructure.

The ISSMS continues to provide key force protection and situational awareness to SOF teams in every area of operation. It is crucial that we continue to modernize our SIGINT gear in order to keep pace with the ever changing increasingly sophisticated technologies we are encountering on today's battlefields.

The JTWS program will significantly improve our ability to provide early warning, force protection, situational awareness, and tactical targeting in support of full spectrum operations in general and the global war on terrorism in particular. In short it assures our operators define the conditions of the battlefield, keeps aircrews, sailors and soldiers alive, and enables precise target engagement. The fiscal year 2005 budget requests \$13 million to sustain current cryptologic systems, to procure Ground SIGINT Kits to replace the ISSMS and to complete JTWS air variant development.

Multi-Mission Advanced Tactical Terminal (MATT)—MATT provides SOF with a near-real-time capability to receive and process national and theater intelligence broadcasts. It provides threat warning, force protection, enhanced situational awareness, and target acquisition information to SOF via receipt of Integrated Broadcast Service (IBS) data. IBS data supports mission planning and execution by aiding the warfighter with course of action analysis during infiltration and exfiltration from operating areas. The currently fielded MATT systems are rapidly approaching the end of their service life. USSOCOM is currently pursuing the Embedded Integrated Broadcast System Receiver (EIR) technology to replace MATT and Briefcase MATT systems. EIR utilizes Embedded National Tactical Receiver (ENTR) technology, which is significantly smaller and lighter and uses less power than the MATT. ENTR is a receive-only system that will provide globally deployed SOF with an enroute capability to receive near-real-time intelligence data on the changing threat and target environment. USSOCOM's ENTR contract will accommodate SOF's basis of issue plan requirements, as well as the DOD and Second Party members' requirements. USSOCOM has been working with the IBS Executive Agent, the United

States Army's Joint Tactical Terminal Program office, and the Services. The fiscal year 2005 TIARA budget requests \$1 million for MATT sustainment.

Special Operations Tactical Video System (SOTVS)—SOTVS provides the capability to capture, store, and forward digital imagery in near-real-time and in day or night. SOTVS provides a diverse array of surveillance and reconnaissance mission capabilities and operates in environments utilizing the global command, control, communications, and computers communications infrastructure. This capability has proven invaluable in OEF and OIF and will continue to be critical to success in the global war on terrorism. The fiscal year 2005 SOTVS TIARA budget request of \$2 million will sustain digital imaging equipment, remote controllers, and transmission devices.

National Systems Support to SOF (NSSS)—NSSS is a rapid technology development program that is funded to leverage technologies and systems from the national agencies, Services, and national laboratories, with the goal of quickly improving the exploitation of existing and emerging space technologies to satisfy SOF requirements. NSSS improves the combat effectiveness of USSOCOM, its components, and the TSOCs through the innovative use of national and commercial space intelligence, data processing, and communications technologies and systems. This includes Imagery Intelligence, SIGINT and Measurements and Signature Intelligence, and associated tasking, processing, dissemination, and tactical display technologies. Requested funds of \$1 million in fiscal year 2005 provide enhancements in SOF personnel tracking capabilities, miniaturized antenna and receiver technology, surrogate satellite/high altitude airship technology, and providing mission essential intelligence to forward deployed forces.

#### JOINT MILITARY INTELLIGENCE PROGRAM (JMIP)

At USSOCOM, JMIP funding allows USSOCOM to maximize the total force construct by providing critical Reserve support each year. Reserve Intelligence support provides almost half of USSOCOM's total intelligence manpower requirements. These reservists are integrated into every intelligence mission area within the command. USSOCOM is requesting \$3 million in fiscal year 2005 for military reserve support. We have exceptional expertise and skill sets throughout for Reserve Force and we must retain this support. This funding provides USSOCOM with personnel who possess the highly valuable skill sets that are in high demand throughout the SOF Intelligence Community.

#### SUMMARY

In conclusion, there is much work to be done to protect our Nation, accomplish our missions, and take the fight to the enemy. We are taking the right path to maximize ISR programs that enable precise engagement of SOF in the global war on terrorism and maintain our readiness. Our process assures improvement in effectiveness and efficiency of operations as we adjust through lessons learned and changes to the battlefield. Our requirements are documented in USSOCOM and component Mission Needs Statements and Capability Documents. These requirements serve as the basis for programming, doctrinal, procedural, and force structure changes to correct ISR-specific operational deficiencies. OIF, OEF, and the global war on terrorism will continue to challenge our intelligence system and we must look ahead to make sure we optimize our collection efforts, collaborative processes and architectures, and cross-sharing of information to make sure the right people, know the right things, at the right time.

Thank you for the opportunity to represent the Quiet Professionals of USSOCOM to this committee and for your continued support to our forces and, more specifically, to our intelligence needs in your role of oversight and fiscal decisionmaking. We appreciate your efforts and assistance.

Senator ALLARD. Thank you, gentlemen, for your testimony.

I just want the members to know what we're planning is, from here, we'll give each member 5 minutes for questions, and then that'll probably get us pretty close to 11:30, 25 minutes to 12:00, or so, and then move to the other room that's secured for secret discussions, and then I want to just start out, do the questioning. I'll yield my time first to the Chairman from the Armed Services Committee, Senator Warner, and then we'll call on Senator Nelson, and then we'll proceed from there.

Senator WARNER. Thank you very much, Mr. Chairman.

I say to you, and your distinguished colleague, you are a great team because of all the subjects we have, I think there's the greatest degree of bipartisanship on the importance of intelligence and how it's a force multiplier and literally saves lives. Lives are very much on our mind at this hour, when our forces are fighting, and we have reports now of significant casualties, both killed and wounded, and our hearts go out to their families and to the bereaved.

Mr. Chairman, I had the privilege of being in Iraq just 2½ weeks ago, and, General Alexander, I met with General Fast, a very impressive major general, who's your chief of intelligence. Matter of fact, I spent several hours with her during the course of that day.

This leads me to the question. Right now, I'm working with the leadership to have the Chairman of the Joint Chiefs and perhaps the Secretary of Defense come over this afternoon to work with the Senate. One of the issues that we'll be discussing, Secretary Cambone, is the issue of the June 30 deadline for turnover of the sovereignty. Speaking for myself, I have done a lot of research and thoughtful discussion on this. I feel very strongly we should hold the course and maintain the schedule of turning over sovereignty on the 30th, irrespective of the increased insurgency, because I feel that it affects the credibility of the coalition forces, and particularly the United States and Great Britain, in the eyes of the Iraqi people, recognizing these insurgents represent a small percentage of the Iraqi people, the majority of them desirous of obtaining freedom and sovereignty. It also would affect the credibility of our efforts in the eyes of the bordering countries. I've visited with the heads of state and government and military commanders of several of the bordering countries. Throughout that region, I think, it would send an unfortunate signal if we were to arbitrarily shift that date and leave an uncertainty.

Does the intelligence show any meaningful indicators with respect to holding fast, versus changing the date?

Dr. CAMBONE. No, sir, not that I have seen this morning or over the last few weeks. You've heard the President's position, you've heard the Secretary's position—

Senator WARNER. Both the Secretary of Defense and, indeed, the President have spoken out very firmly on this.

General Alexander, from your perspective?

General ALEXANDER. No, sir, I haven't, either. I appreciate your comments on General Fast. Thanks.

Senator WARNER. Yes.

General ALEXANDER. Thanks.

Senator WARNER. Fine. Thank you very much, Mr. Chairman. I thank you, Members, for your indulgence. I yield back my time to questions you may have.

Senator ALLARD. Thank you, and we appreciate your being here. I also had a chance to go over to Iraq a couple of weeks ago or so, and had an opportunity to see the Predator, and actually see it land—very impressive. Part of your discussion this morning and your testimony—as well as to see the Stryker new Light Armor Division actually being at work here on TV and seeing those—that new technology being put to work out there, and so it's always

heartening to see that that's out there serving the men and women on the battlefield.

Senator Nelson?

Senator BILL NELSON. Mr. Secretary, Space-Based Radar, persistent surveillance, how do you define "persistence"?

Dr. CAMBONE. I appreciate that question, Senator, because I think there is some misperception about it. I do not define persistent as continuous in the sense of every minute of every day, day in and day out. Where I think we need to go is to an understanding of the amount of time that we need to have under observation, as General Wurster said, the targets of interest. That interval needs to be commensurate with the character of the activity that we are trying to observe.

So a ship crossing the ocean moves at a given speed, and within a fairly simple mathematical calculation, you know where it could be over some given period of time, and you need to be able to be within a time interval, all right, that is consistent with your ability to reacquire that ship as it's moving.

With respect to something that's moving on land, on the other hand, which is moving in a more confined space and may be moving more rapidly than a ship is, you would have to have what's called a "revisit rate" that is more frequent than it would be for a ship.

What we're in the process of doing with the Space-Based Radar, working our way through, if you will, those algorithms. How frequently do we have to revisit a target? Over what area do we have to cover? Then—and here is the important part, and why I said what I did in my opening statement—to integrate the data that you would get from a Space-Based Radar with the aircraft that provide radar coverage, with the aircraft or satellites that might provide signals intelligence, and with those human sensors or those remotely-placed sensors that one may have, and integrate all that data to provide the level of persistence that's required.

Senator BILL NELSON. Horizontal integration. I'd like each of the witnesses to say what you're doing to increase the number of analysts to support the increased volumes of data that the new collection system is going to provide. Since we'll probably never have enough imagery, analysts, or linguists to support the data volume, what steps are you going to be taking to reduce the workload and increase the efficiency?

Then before the 5 minutes gets out, General Sams, Joint Surveillance and Target Attack Radar System (JSTARS) is something that I've been involved in for over 15 years. It's located in my home town of Melbourne, Florida. Last year, Congress asked the Air Force for your views on proposed re-engining. When is the Air Force going to produce the required report? What's the Department's position? I'd like you to share that with the committee.

General SAMS. Sir, in terms of re-engining the JSTARS, I know there's been a lot of discussion in the Air Staff, and I know that the aircraft could use new engines. I would like to take that for action and get back to you with a coordinated response from the Air Force, sir.

Senator BILL NELSON. Okay. If you will get in touch with me, personally.

General SAMS. I will do that, sir.

[The information referred to follows:]

The draft JSTARS re-engining report is in Air Force top-line coordination. The draft report covers the operational benefits and lower overall life cycle cost of re-engining JSTARS through purchase or lease, compared to maintenance of the current engines. While re-engining makes a good business case, the Department will likely balance the need for JSTARS re-engining with other Air Force priorities as it builds the fiscal year 2006 budget submissions. OSD AT&L will sign out the report to the Hill when it is approved.

Senator BILL NELSON. Good.

Gentlemen, horizontal integration, and what are you doing to increase the number of analysts and so forth so we can analyze the data?

General ALEXANDER. Sir, in Army transformation, we have a great increase in intelligence soldiers—our interrogators, our counter-intelligence, and our off-source analysts—and we’re moving them down to brigade level under task force modularity, and it’s a superb effort. It takes the connection in the system, the DCGS of the future, and gives that down to brigade level and below. I think this is important.

We are coupling, to the DCGS, the tools that we are using in the IDC and in Project Morning Calm that they need to work through the mounds of data that we have available. This new technology is key in getting at the problem that you’re talking about, sir, how do we rapidly sort through information, hundreds of thousands of reports, that have been, over the last several years, that might be applicable to an apprehension? We’ve found that it has been superb. We are getting that out now. I think that’s going great, sir, and we have several places that we could show you that in operation.

Senator BILL NELSON. How about the Navy?

Admiral PORTERFIELD. Yes, sir. We have several initiatives underway in this regard, and I consider horizontal integration, the way to describe it is “data ownership.” We have to get rid of that as a principle. It’s shared. As General Wurster said his SOF assets could have a bit of information that makes a great deal of difference to the President, but we may not know that. So horizontal integration is that concept.

We’re doing two things that I think you’d like to hear about. First, we’re taking some people that are doing, and have been doing in the past, largely administrative work, and we’re turning them into imagery analysts. We have in the program this year requests for several transformational UAV platforms, which will take analysis to make some use of them. We are doing that. The second one is, we are actively integrating our Reserve intelligence forces into active participation in our overall effort, from training to the production to the way we recruit and assign these people. So those two things—one, turning the administrators into the analysts, and also making much greater use of our very fine Reserve component.

Senator BILL NELSON. How about Special Operations?

General WURSTER. Sir, one of the things that was General Schoomaker’s vision just came online in 2001 and 2002. It’s called the Special Operations Joint Interagency Collaboration Center (SOJICC), and it’s a collaboration center. What we have done is coordinated to gain access to a large number of classified databases



that comes back through the intelligence architecture. We have a fairly small group of people down there, but they have built the equivalent of a Google search engine, if you will, that looks at—where Google looks at 5 billion Web pages, this looks at 15 billion pages of information. So if you type in “al Zarqawi” and “chemicals,” it will draw for you a visual presentation. If you add, say, “halalah activity” for financial transactions, it will give you another map, and we can use those maps. What we’re using is—we’re finding ways to use the information to learn information about the information, and to know where to look to apply resources. So we’ve taken a technological jump in the methodology by which we’re going to approach that, much the way you would search on eBay or something like that. But we were able—for instance, as they were rolling guys up in Iraq, we had the list of people we were trying to find, and so we ran all of their information in the SOJICC, and printed out a notebook that would fit in a soldier’s thigh pocket, “When you get this guy, here’s who his family is, here’s where he’s from, here’s who he’s hooked up with. By the way, get us his phone numbers,” and things like that.

So that is probably the most significant piece of horizontal integration we have. But that, primarily, again, is as a consumer of other people’s expertise. So, as we gain access to more information of that type and infuse into that structure, we anticipate that we will have continued success with that. Right now, whenever we have people go out around the world, they’re bringing information back and plowing it into an infrastructure that enables us to mine it later.

Mr. DECKER. Sir, on the Marine Corps side, since Operation Desert Storm the Marine Corps has gotten about 10 percent or more smaller, but the number of intelligence analysts in the Marine Corps has actually grown by 10 percent over that same period. So we’ve made an investment in analysts to handle this information flow. The target folders that were used to brief the Fallujah operations to Joint Task Force-7 (JTF-7) and, in turn, to get the SECDEF’s and the CENTCOM’s approval on the mission were done by, first, intelligence battalion analysts that are right there on the ground with 1st Marine Expeditionary Force. So that system is working.

Part of that, sir, also is a great Reserve capability. The commandant has approved a doubling, 100-percent increase in our Reserve intelligence analysts, starting in fiscal year 2005, so we’ll be increasing that.

But I think it’s important, also, when you look at horizontal integration, to look at the data tagging and then the tools for searching and looking at the data, and the attempts to automate that. There’s two attempts to tag data. One is Extensible Markup Language data tagging that occurs with finished products. Then the other is the role of the Air Force’s DCGS 10.2 integration backbone and setting a standard for tagging the raw sensor data as it comes in, so that’ll even speed that up further, and then to provide the analysts tools to search that raw data. So it’s a synergy, sir, of analysts, reservists, tools, and database tagging.

Dr. CAMBONE. Let me just close that off, Senator, to say that there are probably two parts of this that are important, in addition

to the analysts. One is what Mike Decker just talked about, and that is the enabling technologies from the communications pipes to the machine-to-machine interfaces and so forth. That's enormously important.

The other thing that's important is access, access, access, because the more that the people who use the data have access to the information as soon as it is in a consumable state, ironically enough, the fewer analysts you are going to need. What you want to do is get to an environment in which the user is able to find what he needs, and make use of it, and then leave, for the analysts, the harder work of putting together larger mosaics, trend analysis, and things of that sort. We have to learn how to get the access for the operating forces to the information that they need.

Senator ALLARD. Thank you.

I'll now take my 5 minutes. I want to address this to Secretary Cambone.

Where are you—I don't expect a real detailed answer in this—in standing up your Department? Are you 80 percent there, 75 percent, 100 percent? Where are you? I was struck by some of the challenges you have, 14 pages of committees and boards that are all involved. You have to worry about consolidating, and some directives go all the way back to 1970. So if you could just give us very quickly some idea about where you are as a percentage of getting the Department stood up.

Dr. CAMBONE. Yes, sir. In terms of personnel—I was just briefed this morning—I have 117 people, billets, Department of Defense billets. There was some number of contractor support. My staff thinks they need a lot more people. I'm not so certain. But we probably need another handful of people, and we'll work that over the next few months.

In terms of the directives—the 30 directives that sit out there—that is just a matter of dogged determination in going through them, so I feel pretty good about that. The 14 pages of boards and committees, I'm less satisfied with. We have not yet undertaken the effort to get all of that consolidated. So in terms of people, we're probably at the 85 percent mark. In terms of going through the paperwork, we're probably somewhere at the 50 to 60 percent mark.

In terms of establishing the relationships that make the organization work, I think we're well on our way to making those connections.

Senator ALLARD. While you're in the process of standing up your Department, some are even suggesting that we need to establish a cabinet-level Director of National Intelligence. I'd like to hear what your views might be about the establishment of a Director of National Intelligence.

Dr. CAMBONE. Yes, sir. You won't be surprised that I share the views of the Secretary of Defense. [Laughter.]

That is that what you have heard here today is as compelling a case for retaining the extant relationship between the DCI and the SECDEF. The information on which the operations of the forces depend are only in part generated by the DOD. The remainder of it is generated through those systems which are developed and operated in the context of a national foreign intelligence program. Ab-

sent the deep and abiding relationship between the DCI and the SECDEF, it is easy to see the ways in which seams would begin to grow up between organizations and in which the DOD would not benefit, and, in fact, the Intelligence Community, as a whole, be hurt by that split.

So sustaining the existing relationship, we think, is essential. Are there areas that one can look to see improvement made? Certainly. We have reviewed some of those. Indeed, the additional funds that have been requested by the President for intelligence reflect an effort on the part of the DOD and the Intelligence Community to identify our shortfalls and shortcomings, to suggest our priority, in terms of fixing them, and then coming to some conclusion about where the resources should come from in order to be able to pay for those shortcomings.

So I honestly do not see advantage to the creation of a different structure for the governance of the Intelligence Community than the one we have today.

Senator ALLARD. The other question I want to bring up is open-source intelligence. We have a lot of reporters that are covering a lot of the issues related to Iraq and a lot of our foreign affairs, and they establish relationships, and then they report their findings on TV, or they report their findings in the newspaper, sometimes even on the Internet. Are we paying attention to those open sources? Seems to me like perhaps they could be helpful. I wondered if any of you want to respond to that.

General WURSTER. Sir, I'll respond to that. If you haven't read Maria Ressa's book, called "Seeds of Terror," about Jemaah Islamiyah in the Pacific, you should read it. She interviewed me when I was the Joint Task Force Commander in the Philippines, and she is incredibly articulate. As a matter of fact, I distributed that book to all the flag officers at USSOCOM. She knows what's going on in the Pacific; and when she talks, we listen.

Senator ALLARD. Any other comments in that regard?

General ALEXANDER. Yes, sir. We use open source in our analytic centers. We use that information, and it does help us to link different things together. So it is used widely.

Senator ALLARD. I see all of you shaking your head up and down. I'm assuming that you do use those sources.

Just, finally, the UAVs are in use. I'm curious as to how many different—I'm not asking about the number of UAVs, but how many different UAVs are now in use in each Service, and what unexpected difficulties have you encountered, and what are you doing to address some of their problems? I address that to all of you.

Mr. DECKER. Sir, in the Marine Corps we have two different types of UAVs. We have the Dragon Eye, which we call our "back-pack UAV." It's a small UAV that folds up about this big, that's used at the battalion level. They used them at the regimental level in OIF as well. Then we have the Pioneer UAV, which is referred to as a "tactical UAV," that has about a 100-mile range. The problem we had with the Pioneer UAVs—there were two squadrons of them with the division—the problem was the 100-mile range. The MEF commander attached those two squadrons to the division because he knew the division would be running fast. As Dr. Cambone said, you want him to be able to tailor his persistent surveillance

to where and when he needed it, so he had his own UAVs to do that with, but he was just maneuvering so fast and often covering more than 100 miles a day, and he would have to seize an airfield that those UAVs could operate from, or a piece of road. So our plan for the Pioneer replacement, that's in the 2005 to 2009 program, is to replace it with a vertical takeoff UAV with increased range and speed that will then allow us to go further than 100 miles with the air platform, and the ability to sprint back and forth between maneuver units that are in trouble that need persistence surveillance at any given time.

In the case of the backpack UAVs, our solution is just to buy more of them, because there just weren't enough. We had great success, though, with the backpack UAVs in the case of the crossing of the Tigris River. The division commander told the regiment, "Don't show yourself unless you're sure the bridge is still standing, because I don't think the enemy realizes we bypassed Al Kut and we're already up here." He said, "Can you see the bridge? Or can you get somebody up to the bridge?" The regimental commander said, "Well, we can't get close enough to see the bridge with binoculars without the enemy knowing that we're here, but we can let the lead battalion throw their backpack UAV up over the hill and look," and that's what we called that. We called that the battalion commander's with look-over-the-hill capability with the backpack UAV, the Dragon Eye. So we've had good success with them, sir, and we just want more of them and want them to be better.

Senator ALLARD. Admiral.

Admiral PORTERFIELD. Sir, in the Navy we don't have any operational UAVs right now, but we have two programs that are in development; one, a tactical platform for use on our littoral combat ships, as well as a high-altitude UAV, we call Broad Area Maritime Surveillance (BAMS) at the moment, for maritime surveillance. We intend to stay the course and develop the concept of ops as both of these platforms can be used to provide the maritime ISR that we require.

Senator ALLARD. General Alexander.

General ALEXANDER. Sir, we have right now three UAVs. Let me go over those. We have what's called the short-range UAV, which we've just begun to purchase those. I think we have 15 right now in Iraq and Afghanistan working, and those will increase, thanks to your support in the supplemental for purchasing more of those rapidly for our forces. Those give the battalion level, company level, the ability to see over the next hill. The tactical UAV, or Shadow, is the one that we're buying for the brigade level. Under Army transformation, both of those increase significantly and are needed for the battalion and the brigade commanders to see out to their level. At the division theater level, division corps theater level, we have the extended range multi-purpose UAV coming online.

I would like to point out that we don't see the UAV mission as something that the Army does alone. We depend heavily on the Air Force for their support with Predator and Global Hawk, also. So integrating across that is key to the way that we'll operate in the future.

Senator ALLARD. General?

General SAMS. Sir, we have three primary UAV systems. We have a small one, called Desert Hawk, which our security forces use. It's literally launched with a bungee-type rubberband, but it has a 200- to 500-foot altitude capability. It flies around the air bases. It allows the security forces to have eyes outside the gate. It's been very successful, actually. Over in OIF, we've found weapons caches, we've found some bad guys running around. It's been very good for force protection.

Probably our best-known one is the Predator. We consider that as a true growth industry. I think the limitations that we have on Predator are primarily range. It has a whopping 65-knot air speed, and so in a 70-knot wind, it takes a long time to get anywhere. [Laughter.]

So that's one of the reasons that we're looking to the Predator, the B version, which will be the turboprop version, and it'll fly 30,000 feet, and we'll be able to get to the target a lot faster with a heavier payload.

Global Hawk, our high-altitude system, is very popular. We are working hard to make that operational. There is a pre-production model right now that's working pretty well at Edwards, and we have accepted two production models out there. Our challenge, though, is to get the pilot training, get the ground systems in place, get the maintenance, all the kinds of things that it takes to build an operational squadron to make it operational.

Senator ALLARD. I now call on Senator Ben Nelson from Nebraska.

Senator BEN NELSON. Thank you, Mr. Chairman.

With all the discussion about UAVs and looking over the hills, I suspect that Admiral Porterfield was thinking the Navy probably got this right first with the periscope. [Laughter.]

But whether we look at horizontal or vertical integration of intelligence, I think that it all boils down to something that maybe Lieutenant General Ronald Keys, USAF's Deputy Chief of Staff of Air and Space Operations, when he was quoted in this month's issue of ISR Journal as saying, "Many of the things we're doing today involve a system-of-systems approach, a network-enabled solution. It's the ability to take information from different sensors and fuse it to get that cursor over the target."

Secretary Cambone, does STRATCOM have the ability to address requirements such as integrating multiple ISR feeds into a common global display for use in global command center, an ISR feed? Then, second, would it be safe to say that STRATCOM's global operations center requires a level of C-2 integration, which cuts across the national to the tactical level of operations at a level not equal to—found in any other command, fusing together operational and intelligence information?

Dr. CAMBONE. I'll give you a qualified yes to the second question, and the only reason I qualify it is that I would argue that the extent, scope, depth of information that they will need at Omaha on a tactical situation, I think, is a matter of judgment for the commander about how much of that he may need. I can tell you that that kind of data is readily available. You can go into any of the ops centers, you can go in the Pentagon and see at a very finite level of detail those tactical feeds.

With respect to the question of whether they are yet arranged, situated to do the task, again, I'll give you a qualified no. The reason I say that is that they are equipped for most of the connections that they will require. The question of whether they have the stations and the internal servers and support networks and so forth is not clear to me. Admiral Ellis has put forward a proposal over the course of the Future Year Defense Plan (FYDP), the next 5 years to build that capability out there and to meld both his intelligence and his targeting activities so that he will be able to do both in a unified way.

Senator BEN NELSON. Will that be supported in the budget by the Defense authorization?

Dr. CAMBONE. You bet. There is funding in 2005, on the order of—I want to say \$80 million. He did not receive in 2004 what he had requested, and I am aware of that, and I have asked my people to see if, as we go through the midyear reviews, we can find some additional funding for him to get started earlier. The issue is, when can he let the contracts with some confidence that there is going to be the funds there. He and I have talked about this, and I have asked them to go see if they can find some money for him.

Senator BEN NELSON. General Sams, I understand the Air Force is standing up the Air Force Strategic Command (AFSTRAT) and that will be the force provider for STRATCOM. Maybe you could expand on how this command would be organized, and how it'll integrate with current STRATCOM operations and activity.

General SAMS. As I understand it, the AFSTRAT concept was still in discussion with Admiral Ellis and Air Combat Command. But in terms of the ISR forces, we do present them through 8th Air Force, so we have the command-and-control wings underneath Lieutenant General Carlson at 8th Air Force. Then those forces are then tasked through our normal Air Expeditionary Force (AEF) rotation cycles, and in terms of ISR forces, those are proportioned in accordance with the demands of the AEF and also the demands of what is the joint staff. Then as STRATCOM then takes over the ISR responsibility, there'll be proportioned in accordance with that.

Senator BEN NELSON. Would that include the joint command of Space Command, as well as part of that action, or are they separate?

General SAMS. I believe it does, and let me get back to you with a more definitive answer.

[The information referred to follows:]

Day-to-day Air Force administrative tasking for Air Force space assets fall under Air Force Space (AFSPACE). For those apportioned to STRATCOM their day-to-day tasking will be done by STRATCOM through AFSPACE via STRATAF once it is stood up.

The draft fiscal year 2004 Forces for Unified Commands will assign STRATAF (8AF) as an Air Force component to STRATCOM. STRATAF will consist of a headquarters staff and air operations center to provide planning support for Air Forces forces to either assigned to under operation control for STRATCOM.

An AFSTRAT forward element is being established to Offutt AFB and it will have the ability to communication with 8th, 14th, 18th, and 20th numbered Air Forces.

Senator BEN NELSON. With the Orwellian big-brother approach that intelligence offers, I am concerned about how you move from overload of information to analysis to use. Obviously, inadequate information and inadequate intelligence is a problem that I'm sure

that you're very carefully using the information you have to avoid overload problems so that the analytical side and the utilization of it can be as effective as possible. Would any of you like to comment on that? I assume, General Alexander, you'd be interested in this finding.

General ALEXANDER. Yes, sir. I'll tell you that you bring up a real key point about how we leverage information-age technology for our Intelligence Community. What I mean by that—when I grew up in intelligence, we used to take 100 messages and spread them out on a table in hard copy, and then our analysts would go through—

Senator BEN NELSON. You probably still do some of that, I take it?

General ALEXANDER. No, sir, they bring them in to me now, and they tell me, "This is the one you should read."

Senator BEN NELSON. Oh, okay.

General ALEXANDER. You see, when they do that, the irony is, they're filtering it for you. In our systems yet today, when you're on the Internet, what you do when you do a Google search, for example, is, you do a search, you get a query with 50,000 responses, and then you redefine your query to cut it down to a hundred.

Senator BEN NELSON. Yes.

General ALEXANDER. But the intelligence that we need, especially in the global war on terrorism, was in that other 49,900. So what we have to do is train the analysts to use that information in realtime.

We sat down with one of our terrorism analysts who had, similar to what General Wurster talked about, the ability to take 200,000 messages and put them up into spheres and to make and bring the information amongst those spheres together to track for the Marine shootings in the Failaka Islands to a shooter in Saudi to support a national agency on who this guy was and what he had done, 210,000 messages that an analyst was using. Now, we can't do that consistently across the force, but that's what we have to do, is take those kind of tools and the ability to use that in realtime and get that amongst our analysts. I think that's what we're trying to do with the DCGS, IDC, and Project Morning Calm.

Senator BEN NELSON. Is that technology better than Google's?

General ALEXANDER. Yes, sir, absolutely. [Laughter.]

Senator BEN NELSON. Okay.

Senator ALLARD. The Senator's time is expired.

Senator BEN NELSON. Thank you.

Thank you, Mr. Chairman.

Senator ALLARD. Senator Dayton.

Senator DAYTON. Thank you, Mr. Chairman.

Did our intelligence—Mr. Secretary, I'll direct this to you and then others that want to respond—in Iraq develop a foreknowledge of the latest eruptions of the insurgents?

Dr. CAMBONE. I don't think, sir, that there was much confusion about the situation in Fallujah, and I don't think that there was a lack of understanding about the political situation in the south, in the Shia area.

Senator DAYTON. Can you give me just an applied lesson and an applied intelligence—and what is the nature or the specific kind of

intelligence that you're able to obtain through your various devices—and we can go into closed session if you want to elaborate—but that provides forewarning to our forces there that something is developing, or the nature of what's developing, or the size of the force that's developing?

Dr. CAMBONE. I'd be happy to do that, sir, but if we could, would you allow me to do that in a closed session?

Senator DAYTON. Absolutely.

Dr. CAMBONE. Yes. I think the others can give you some information as well.

Senator DAYTON. Okay.

Is the intelligence that you gather in your respective branches, is that shared with your counterparts in the other branches at the level of intelligence, or is that the level of operations? How is that transmitted to one another?

General ALEXANDER. Sir, we share intelligence back and forth, at least from my perspective, amongst the Services extremely well.

Senator DAYTON. Okay.

General ALEXANDER. We argue over who should do what at times. But I'll tell you, on the ground it works very well together, passing the information, as General Sams said, from the Predator and others. I think that's getting better and better all the time.

Senator DAYTON. That's shared at the level of the intelligence operations, or is that at the level of the on-the-ground—

General ALEXANDER. On the ground.

Senator DAYTON. On the ground, okay. When you talk about the 49,900 units of information that you have that you need to analyze, how do you distribute that information? Because somebody else might have another 49,900 something that connects up. How do you integrate that, or is it even desirable to integrate it? Any of you?

General ALEXANDER. Yes, sir. Let me jump in on this, because you're hitting on a key point where the databases that we have that would have all the information that goes back years, as an example, would be maintained at a national and a theater level; and then at a higher classification in the operational intelligence that I'm talking about of sharing on the ground—for example, tracking a target and destroying it. So if the question was, what do we know about Abu-X, and who is he related to, and how does that lead to a takedown that we would work with the SOF or with the Air Force, that information is information that is in those nationally-held databases, and goes all the way down, today, to division level, that we will move down to brigade level in the future, and that all of our Services have at a certain level that is specially compartmented.

The secret collateral-level information goes all the way down to our battalion level and is something that we are now taking down to the soldier level, sensitive but unclassified, so that they have that information. So that if Predator sees something over the next hill, they can get that information through all that, all the way to that soldier over the next hill. More importantly, that soldier can ask a question and oftentimes the Air Force will re-tier that platform to help us understand what's going on. So when I say it's working back and forth, that's what I mean.



But we have to continue to push that Distributed Common Ground Station, which we are in a joint effort. That's something that I think you'll see all the Services benefit from in the future.

General SAMS. Sir, Mr. Decker mentioned earlier about data tagging. I think that is one of the key things about making all of that information available, because what I might be interested in something different, as an Air Force person, than the Army did, but we want to be able to click on something and get it immediately. The other thing is, if that data is tagged, if the machine can talk, it prevents me from having to manually type certain bits of information—and then the way I type it, I know it's going to come out wrong—so that we reduce our opportunities for errors when we can do that, and those are the kinds of things that we're working really hard on.

Senator DAYTON. Thank you.

Yes, sir?

Mr. DECKER. Sir, as General Sams and General Alexander said, all of the data, all of the intelligence information reports are being shared at the secret level, from the battalion tactical unit teams all the way up to the JTF and then into the national databases, and that's where the great synergy occurs. Dr. Cambone mentioned the importance of robust communications, and getting larger bandwidth in the future. But when you uncover an individual at a battalion-level tactical HUMINT team, and you flip open your CI/HUMINT laptop, and you start trying to check that person's name in the database, you can find out if anybody else has ever mentioned that name before. You can find out if any—if he has phone numbers on a piece of paper in his pocket, you can find out if those phone numbers have ever been used before, and who he possibly has been talking to, who he's associated with. That pattern-linked trend analysis is key to unwrapping all of this. It's very important that we share the raw information reports and the finished products both online, and have the bandwidth to share them across the force.

Senator DAYTON. Thank you.

Mr. Chairman, my time is expired. The only question I would have outstanding, and maybe it's better to get it in writing from each of the branches, is if there's anything that they need seriously that is not included in the 2005 authorization budget.

Senator ALLARD. You can submit questions and we'll ask the panel to respond back in 10 days.

Senator DAYTON. Thank you. All right, thank you, Mr. Chairman.

Senator ALLARD. Senator Reed.

Senator REED. Thank you, Mr. Chairman.

Secretary Cambone, you've been a promoter of the Space-Based Radar system to develop global persistent surveillance. We are having a difficult time funding space systems, in general. Many of them are difficult in terms of cost overruns. The modest version of the Space-Based Radar being proposed has a substantial cost already, likely to grow. What are you doing to ensure that we will have not only a feasible alternative, but one that we can afford?

Dr. CAMBONE. Yes, sir. Three things, none of which may seem to be critical, but, I think, in fact, is where we have to be focused if

we're going to get to affordable systems, no matter whether they're in space or on the ground or at sea.

First, the contract proposal that has gone out is seeking not a point solution by a single contractor, but is looking for a first cut at the range of alternatives, trying to calculate the needed capability over against a range of metrics and measures about its application and use. So we'll have a better sense of the applicability of the system, its mission effectiveness, than we might otherwise have, and be able to define and refine its performance. Because we have a habit of saying to ourselves, "Space systems are expensive, so let's hang every Christmas-tree bulb we can think of onto that platform," and that drives the cost up substantially. So the first thing is to work closely with the contractor community to make sure we understand the range of capability over the range of applications.

Second, we are working with that same contractor community to develop a new set of metrics to measure how the system should be analyzed—evaluated. Let me give you an example.

Today, we essentially have a single-shot-camera approach to taking imagery. It takes a picture, and it takes a picture, and it takes a picture, and it takes a picture. So you can come up with some metrics. How many pictures can you take in a day, over what area, and so on and so forth?

That's not how the Space-Based Radar is going to work. The Space-Based Radar will be about managing an output of energy, and that energy output will be relatively continuous. So the area to be covered is known. The question is, how much information are you going to be generating as that beam sweeps across the area of interest? How do you understand its value? We've never done this before, and so we need to apply a new set of metrics back against the performance and the applications that I mentioned earlier.

Then, third, Mr. Teets has written into the specifications for the contract that he wants the senior management for the program to be of long-serving managers. We have a habit of seeing people, both on the government side and the contractor side, move through the management ranks of these major programs. He is looking for longevity in those programs. Hopefully he is going to see that the program manager has the kind of authority he needs to make certain that those standard elements of cost growth, primarily requirements creep, are within his control—that is, the program manager's control—and he's not forced to add things that he doesn't think are essential to the mission.

Senator REED. Thank you, Mr. Secretary.

Mr. Secretary, the directive establishing the Assistant Secretary of Defense for Intelligence Oversight provides that that Secretary shall review all allegations that raise questions of the legality or the propriety of intelligence activities in the DOD. Also, he is supposed to report at least quarterly to the SECDEF on any DOD intelligence activities of questionable legality or propriety. Now, the question has been raised publicly about the Office of Special Plans. What is your relationship to the Assistant Secretary of Defense for Intelligence Oversight? Has he issued any reports with respect to the Office of Special Plans?

Dr. CAMBONE. The assistant is just what his title implies, which is that he is in a direct-report status relative to the SECDEF. So

he, that person, that office, does not report through my office, nor do I have any authority over that office. We decided to do that. That was a positive decision, because, in fact, you do want to have an independent eye looking at that kind of question.

Second, he would not normally be asked to do that, because as Mr. Feith has, I think, testified before Congress on a number of occasions, that office was not an intelligence function under the oversight of that office.

Senator REED. It was not an intelligence function, but I think, colloquially, at least, it was conducting intelligence activities. It was analyzing—

Dr. CAMBONE. I don't think so, sir. What they did—I mean, every office within the Department receives, each day, some package of intelligence materials, whether it's in the Services or in the Office of the Secretary, down to the Joint Staff. In the case of the policy community, each of the subordinate offices receives that information. I think that you would agree that they would be remiss if they did not read, absorb, and do what they should with the intelligence that's provided to them, and that is to formulate the policy positions of the Department relative to the issues of the day. My understanding from Mr. Feith is, that was the role that that office played in the course of time that it was in being.

Senator REED. I find the answer less than satisfying, substantively and intellectually.

Thank you.

Senator ALLARD. We'll now move to closed session. We'll have the closed session in room 232. Do I have that correct? So if we can expeditiously move over there, we'll get proceeding further on our testimony.

[Questions for the record with answers supplied follow:]

#### QUESTION SUBMITTED BY SENATOR MARK DAYTON

##### FUNDING SHORTAGES

1. Senator DAYTON. Secretary Cambone, General Alexander, Admiral Porterfield, General Sams, Mr. Decker, and General Wurster, during the hearing we discussed lessons and potential areas for improvement during Operation Iraqi Freedom. Have any equipment or specific program funding shortages developed that need to be addressed in fiscal year 2005 appropriations?

Dr. CAMBONE. This office has been working with the authorizing and appropriations committees to identify all shortfalls in the fiscal year 2005 appropriations bill and looks forward to continuing to work with the committee in the future.

General ALEXANDER. There are many lessons learned from OIF and the Army Intelligence community has organized a task force to document and implement them during fiscal year 2004. As we resolve these problems, we have been making adjustments within the Department of the Army to address many of the intelligence-related equipment, personnel, architectures, tactics, techniques, and procedures. However, there are still unresolved issues.

We continue to rely heavily on contractor linguist support for intelligence, force protection, and general support operations in Iraq and in global war on terrorism. This requirement includes personnel for security screening and investigations.

There is a critical need for an adequate intelligence architecture to support information processing, fusion, and dissemination for successful operations. In that regard, we endorse the acceleration of DCGS-A identified in Army's Shortfall List to Representative Ike Skelton. Additional capabilities required include the IDC and an IDC-Baghdad Extension to support units in OIF 3. The House Armed Services Committee (HASC) recognizes the value of FBCB2-CDA Hand Held reporting devices providing digital reporting capability for dismounted soldiers. The HASC authorized \$6 million for this requirement and we solicit the committee's support to ensure that combat intelligence information is analyzed by intelligence centers. We are conduct-

ing operational testing at this time on the prototypes. The Army is also exploring other intelligence, surveillance, and reconnaissance capabilities to enhance collection and situational awareness. CI/HUMINT have proven to be intelligence disciplines of choice. Both mobile training teams and institutional training are necessary to support increasing training needs. To assist in determining the value of terrorist and intelligence threats, additional contractor interrogators and polygraphers are needed. Procurement of additional communication flyaway packages and CHIMS/CHATS systems are required for deployed personnel. These packages enable reporting of critical CI/HUMINT information to support force protection and battlefield operations. The Army also needs to develop doctrine that clearly delineates the roles and responsibilities between Military Intelligence and Military Police in the handling of prisoners and detainees. This task will require additional civilian or contractor personnel.

There is also an urgent need to track individuals of intelligence value through the use of Biometric FBI Compliant Fingerprint Architecture. A compliant architecture supporting the transmission of biometric data from tactical patrols/tactical HUMINT teams/Special Operations Teams to higher echelons in the DOD will facilitate information sharing with the FBI and support tactical and strategic operations as well as homeland defense. Such biometric data must also be integrated into an overarching architecture to ensure interoperability among multiple Army, DOD, and national reporting and analysis systems in battlefield, crisis, and peacetime environments.

Additional detailed information will be provided upon request.

Admiral PORTERFIELD. On 1 March 2004, the CNO submitted to the Senate Armed Services Committee an Unfunded Program List (UPL) wherein number 22 addresses budget shortfalls for direct intelligence support for the global war on terrorism. Recent operations in support of the global war on terrorism have identified increased need for more robust communications to support real time dissemination of intelligence, more forward deployed contract linguists, forward surveillance equipment supporting ship tracking/MIO, sensor and payload tactical remoting initiatives, increased OCONUS HUMINT activities, databases enhancements, and continued professional intelligence training.

Additionally, I would like to direct your attention to other ISR related requirements on the CNO's UPL. These include requirements for the ACS (#11), FIRESOULT VTUAV (#12), Littoral Combat Ship (LCS) Modules for VTUAV ISR capability (#13), SEA TRIAL-modular mission payloads for Sea Predator UUV (#15), procurement of additional SHARP pods (#39), and finally the procurement of a second UAV BAMS air vehicle to mitigate program development risk (#43). Fully funding these programs will allow us to better support Navy and Joint operational needs.

General SAMS. The fiscal year 2005 President's budget meets Air Force requirements. However, the Air Force is continuing to work through its lessons learned. For the first time in the history of the Air Force, Air Force leadership is standing up a permanent office for Air Force Lessons Learned (AF/XOL) whose partial mission is to collect issues, vet them for actionable items, track progress, and decisions related to any fixes and keep senior leadership informed.

To date, this fledgling organization has taken the voluminous reports on Operations Enduring Freedom and Iraqi Freedom from Task Force Enduring Look; distilled them into broad, but workable areas and briefed each as part of the ongoing Capability Review and Risk Assessment (CRRA) Process. These inputs are used to influence/inform the capability shortfall assessment, which in turn will focus Air Force development efforts in future years.

Additionally, XOL is working with AF/XP to matrix Lessons Learned across each program, thereby informing the Air Force Corporate Process in their budget deliberations and tradeoffs.

Finally, the Air Force is working with Joint Forces Command on shaping the approaches to 42 Joint Lessons Learned from major combat operations in Operation Iraqi Freedom, which will be worked through the Joint Capabilities Integration and Development System.

Mr. DECKER. We have identified four intelligence programs that would benefit from increased funding. The programs listed below were submitted within the U.S. Marine Corps Fiscal Year 2005 Unfunded Programs List (UPL):

1. Communication Emitter Sensing and Attacking System (CESAS). Additional funds procure, test, and evaluate equipment to provide protection against Remotely Controlled Improvised Explosive Devices (RCIEDs). The CESAS provides marines with the capability to detect, disrupt, and deny the enemy use of RCIEDs.

2. Global Command and Control System—Integrated Imagery and Intelligence (GCCS-I3). Funds procure additional computer servers and associated licenses and

software for GCCS-I3 to support the Distributed Common Ground/Surface System (DCGS) Integrated Backbone (DIB). The global war on terrorism has identified the need for collaborative effort to establish a multi-intelligence, interoperable, ISR infrastructure across DOD.

3. Intelligence Analysis System Modification (IAS MOD). Additional funds would purchase a replacement UNIX server for the IAS Family of Systems required to support software migration to the Global Command and Control System (GCCS) 4.X software baseline. The current server configuration will not provide the performance and processing capabilities needed to support Marine Corps Operating Force intelligence staffs.

4. Manpackable Secondary Imagery Dissemination System (MSIDS) for Small Unit Intelligence Toolkit (SUIT). Funding would provide one MSIDS suite for each of the 24 Scout Sniper Platoons at the Infantry Battalion level under the SUIT concept. MSIDS provides capability to capture, transmit, receive, and forward ground reconnaissance imagery products in near real time.

General WURSTER. Currently, the United States Special Operations Command (USSOCOM) is in the process of developing our submission to the Secretary of Defense for fiscal year 2005 supplemental requirements. In that submission, we are focusing on funding needs related to deployment costs, stress on equipment and procurement, all related in USSOCOM's execution of the global war on terrorism. In the global war on terrorism, it is essential that we bring the right sensors to the battlefield, get those sensors to the target, and communicate that information to Special Operations Forces. These types of capabilities are being forwarded to the Department for their consideration in their fiscal year 2005 supplemental request.

[Whereupon, at 11:48 a.m., the subcommittee adjourned and reconvened into closed session.]

