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UNITED STATES SENATE

SUBJECT: SPACE PROGRAMS

STATEMENT: THE HONORABLE PETER B. TEETS ACTING SECRETARY OF  
ACTING SECRETARY OF THE UNITED STATES AIR FORCE

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## **Introduction**

It is my distinct honor to appear before the Committee today to discuss our National Security Space activities as Under Secretary of the Air Force, Director of the National Reconnaissance Office (NRO), and Department of Defense (DoD) Executive Agent for Space. I am further honored to be joined by the Service leads of our National Security Space activities: General James Cartwright, Commander of United States Strategic Command (USSTRATCOM); General Lance Lord, Commander of Air Force Space Command (AFSPC); Lieutenant General Larry Dodgen, Commanding General, Army Space and Missile Defense Command; and Vice Admiral Joseph Sestak, Deputy Chief of Naval Operations, Warfare Requirements and Programs (N6/N7). Our appearance here, together, underscores the importance of unity of effort in our National Security Space endeavors.

I began these remarks by listing my three titles because the consolidation of responsibilities across National Security Space in one person has been a hallmark of my tenure. As you recall, the 2001 *Commission to Assess the United States National Security Space Management and Organization* (Space Commission) strongly recommended such a consolidation to create daily, senior focus that is needed to tackle the complex issues facing our National Security Space efforts. I believe the Space Commission got it right, and we should continue on this path.

One of the advantages I have enjoyed over the past three-plus years has been the ability to manage programs across both the open and classified space portfolios. I feel strongly that these positions should continue to be consolidated under a single individual.

There are a number of reasons why. First, a single manager across all of the National Security Space programs provides a continuity and focus to the overall National Security Space program that could not exist otherwise. Second, a single manager provides for the best coordinated, most cost effective and efficiently managed program, maximizing the leverage between both military and Intelligence Community (IC) space. Third, a single office simplifies the chain of command, harmonizing both the IC and the DoD efforts in space under a single, accountable authority, ensuring the needed cooperation and coordination occurs. This is especially important as we consider the need to improve planning, development, acquisition, and management of our space capabilities, including the industrial base, as our space capabilities also have a tremendous economic and social impact.

Another advantage has been the ability to focus the efforts of the broad space team. As in previous years, I have worked with leaders from organizations across the National Security Space community to review and revise our priorities. As we studied where we are and where we are headed in National Security Space, we found that the 2004 priorities were still sound, so with a few refinements we carried the same priorities into 2005. Our 2005 priorities 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, warfighting, and homeland security; (4) producing innovative solutions for the most challenging national security problems; and (5) ensuring freedom of action in space. These five equal priorities are supported in the Fiscal Year 2006 budget for our defense and intelligence space programs, and I will now discuss each of these priorities in detail.

## **Achieve Mission Success in Operations and Acquisition**

My first priority is mission success in operations and acquisition. Our success in space operations enables the American way of war. We have brought space to bear in warfighting and intelligence gathering and our nation cannot do without it.

Space systems provide global access unhindered by geographic or political boundaries, unrestricted by surface or air defenses. When integrated with airborne and surface sensors, or when acting alone, our systems provide critical intelligence, surveillance, and reconnaissance (ISR) information to national decision makers and Combatant Commanders. They monitor the global environment and produce weather forecasting data for battle planners; carry global communications to and from theater; warn our national leaders and deployed forces of incoming missiles; and send precise navigation and timing signals to troops on the ground, ships at sea, aircraft in flight, and weapons en route to targets. These space capabilities facilitated the tremendous successes our joint warfighters achieved during major combat operations in Afghanistan and Iraq, remain critical components of the joint team around the world, and will enable continued success the Global War on Terrorism (GWOT) and future conflicts.

As recognized in the Space Transportation Policy recently signed by the President, mission success in space begins with mission success in spacelift. We have a string of success with forty successful National Security Space launches in a row.

Within the last few months I visited space professionals at Cape Canaveral Air Force Station, Florida and Vandenberg Air Force Base, California to kick off the processing of the last Titan-IV launch vehicles in our fleet. These Titan IVs are

scheduled to launch this year, marking the end of an era. Another era ended this past February, when the last Atlas-III placed an NRO payload in orbit—the 75th consecutive successful launch for an Atlas launch vehicle.

We now have our Evolved Expendable Launch Vehicles (EELVs), the Atlas-V and Delta-IV, to carry on our proud space launch tradition and ensure our access to space. Eight launches have now been flown, four from each provider, with a ninth launch planned in early March for a commercial satellite. Building on our initial successful EELV launches, we continue our transition from heritage launch systems to two modernized families of vehicles that cover the range of our National Security Space needs. Our strategy is to ensure mission success by maintaining two families of rockets, at least through this decade. These launch vehicles are the best ever, but we cannot now afford to risk grounding critical national security payloads because we relied on a single rocket fleet with a single design.

In December 2004, we conducted a demonstration flight of the first Delta-IV Heavy Lift Vehicle (HLV). The flight met its primary demonstration objectives; however, an early shutdown of the first stage common booster cores left one of its payloads at a lower-than-planned orbit. We are thoroughly examining the cause of the shutdown and will make the changes necessary to ensure mission success in the vital heavy lift regime.

Through the remainder of this fiscal year we plan to launch six more payloads. A new Global Positioning System (GPS) Block IIR-M satellite will sustain the GPS constellation and increase the number of military code capable satellites. Four NRO

launches will strengthen our space-based reconnaissance capabilities. And our last Defense Support Program satellite will sustain our strategic missile warning capabilities.

### **Support to GWOT and Other Operations**

Our space systems and space professionals provide innovative and unique support to US and coalition military and intelligence operations worldwide. They provide situation awareness, continuous communication, and other critical services to Combatant Commanders, senior-level decision makers, and fielded forces.

Our warriors make extensive use of our space capabilities. As an example, just before a special operations mission in Iraq, we received a request for critical space support. We used multiple systems to complete time-sensitive collections against the target area. Immediately upon the final collection, we passed the last crucial bit of data to the mission planners. They used the updated target area characteristics for planning safe entry and exit routes around significant obstacles. The special operation succeeded with zero loss of life.

Fielded forces rely on the precision navigation standard from GPS, but space professionals also provide GPS-enhanced theater support (GETS) that improves signal quality and accuracy. GETS allows Combatant Commanders to make the best use of high quality targeting data.

In addition to warfighting applications, space systems provided key geospatial information to support civil authorities responding to the Florida hurricanes, wildfires in California and Alaska, and oil spills along the east coast of the United States. Humanitarian missions responding to the Indian Ocean tsunami also benefited from space systems.

## **Space Acquisition Programs**

We are equally committed to mission success in acquisitions, and are taking positive steps to improve our acquisition processes. Late last year, we updated our space acquisition policies for both the DoD and NRO, bringing them into close alignment. The policies codify best practices such as Independent Technology Readiness Assessments and Independent Cost Assessments. We are committed to fully funding our programs as they enter their preliminary design phase (Key Decision Point B), and to demonstrate technology maturity in a relevant environment before we settle on a complete design (Key Decision Point C).

In addition to strengthening our acquisition policies, we completed a follow-up to our comprehensive, independent study of space acquisition. Headed by Mr. Tom Young, the Young Panel reported good progress in our reforms, and urged us to continue our hard work. The panel recommended we continue our efforts to provide program managers an adequate management reserve. A sufficient reserve gives a program manager the flexibility to address problems in a timely manner; in contrast, lack of a reserve may drive the need to restructure the program—and often to reprogram funds. A delay of eight to ten months typically accompanies a formal reprogramming action, during which we suffer additional schedule erosion and increased costs. The Young Panel found that the cost of resolving a problem could grow by 300 percent as a result of this delay. Adequate margin under the program manager's control would address these issues and save time and money. We recognize the difficulty of budgeting for a reserve, but I believe the benefits of flexibility and ability to mitigate cost growth argue in favor of adequate reserves.

Last year, Congress reduced our SBR and TSAT budget requests, directing us to spend more time addressing the technology and affordability challenges facing both programs. Our message to Congress this year: we heard you and we have restructured both programs in a way that addresses your concerns.

We fundamentally restructured the Space Based Radar program, which we now simply call the “Space Radar” program. Space Radar will be the single space radar effort for the nation, and provide the deep look, all-weather, day and night surveillance and reconnaissance capabilities required by both the IC and joint warfighters. As part of an integrated ISR network, Space Radar will provide critical information with an affordable architecture by leveraging horizontal integration and advanced technology. To address our current technological and operational risks, we are developing a space demonstration that will work with other ground and air radar programs. With the demonstration, we will validate Space Radar costs and technology maturity as well as demonstrate the Concept of Operations and user utility. This will culminate in an operational Space Radar initial launch in 2015.

We are also moving ahead on acquisition of military satellite communication systems through an incremental acquisition of our planned Transformational Communications Architecture. Our first step will be to field the Wideband Gapfiller System—the first of which is scheduled to launch later this year. We will follow this with the Mobile User Objective System (MUOS), Advanced Extremely High Frequency (AEHF) satellites, and TSAT.

MUOS and the AEHF system are both high priorities for the joint force; for example, the Navy looks forward to these systems’ contributions to their ForceNet.



MUOS, the new DoD narrowband tactical communications program, continues within budget and on schedule for initial operational capability in 2010. It is the common denominator for command and control providing the capability to communicate from tactical to theater levels, to allies and coalition partners, and between DoD and non-DoD agencies. The AEHF program will provide survivable, protected satellite communications for strategic and tactical users. We added about \$1 billion in Fiscal Year 2006 through Fiscal Year 2009, and are working closely with the National Security Agency to resolve problems surrounding government-furnished cryptographic equipment. We are proceeding with a three-satellite AEHF constellation, and we retain the option for a fourth spacecraft.

The first launch of TSAT was delayed from Fiscal Year 2012 to Fiscal Year 2013, giving us more time to bring the laser communication technology to maturity. TSAT remains as important as ever to every Service and all Combatant Commanders, as ultimately their requirements (higher capacity communications, Communications “On-The-Move,” and ISR platform integration) will not be satisfied by the currently planned WGS, MUOS, and AEHF constellations. For example, as the Army implements modularity and dispersed operations, effective command and control of ground forces becomes increasingly reliant on beyond line-of-sight systems. TSAT will provide the ability to communicate while on the move, with the coverage and capacity needed to implement net-centric warfare concepts across geographically separated areas. We remain on a path to deliver a transformational communication capability to the warfighter as soon as technology maturity and our budget permit.

We continue to come to grips with the Space Based Infrared System (SBIRS). We delivered our first Highly Elliptical Orbit payload in August 2004, and are on track for delivering our second payload in June of this year. Also, our Signal Processing Assembly and Single Board Computer problems have been resolved. A more rigorous management approach has been instituted, with increased government oversight. We added more testing at earlier integration levels to allow us to quickly address any new technical problems. When fielded, SBIRS will provide unprecedented missile warning, missile defense, technical intelligence and battlespace characterization to the warfighter. We continue to give SBIRS our highest attention.

GPS modernization continues to be a priority, not just for DoD but for civil users of GPS as well. The Air Force is planning to launch eight of the modernized GPS IIR-M satellites. Each of these satellites offers greater protection against jamming threats, along with new signals for our military and civil users. We continue procuring the next generation of GPS satellites, GPS-IIF, and remain committed to developing and fielding GPS-III and its advanced anti-jamming capabilities.

### **Develop and Maintain a Team of Space Professionals**

My second priority is to develop and maintain a team of Space Professionals. We have great people in the space business and I am dedicated to providing them the tools and training they need to succeed. Our space professionals achieve and maintain our advantage as the world's leading space faring nation. Comprising a unique mix of government civilian, military, and industry professionals from across the DoD and IC, they are space power's most crucial element. We are developing well-educated,

motivated, and competent people who are skilled in the unique demands of the space medium. Today they are deployed with our forces around the world and in place in the U.S., employing their skills, and advancing space power for our nation.

We are working with the Services and National Agencies to synchronize their respective space cadre strategies. Additionally, we continue implementing our Space Human Capital Resources Strategy. On December 15, 2004, we delivered to the Senate and House of Representatives Armed Services Committees an implementation plan for this strategy. This plan includes specific goals and metrics, and a schedule for achieving those goals. Implementing our strategy will foster a challenging and productive work environment; encourage and support individual career development; and build a system that attracts, develops, and retains a talented and diverse team of professionals able to meet future space challenges.

Over the last year, the Air Force established the National Security Space Institute (NSSI) to develop space professionals' ability to harness space systems for warfighting effects and combat support. NSSI courses cover military space systems, space warfare concepts, space tactics and space acquisition. In 2004, the NSSI taught more than 2,500 in-residence students from the Army, Navy, Air Force, and national agencies, including Active Duty, Reserves, National Guard and government civilians.

## **Integrate Space Capabilities for National Intelligence, Warfighting, and Homeland Security**

My third priority is to continue to integrate space capabilities for national intelligence, warfighting, and Homeland Security. We expanded this priority from the 2004 version, to emphasize our contributions to Homeland Security. For example, space systems assist in tracking illicit material and hazardous cargoes, and contribute to border security. But our nation's security begins overseas, including areas where we do not have forces on the ground. In those areas, space systems can provide our eyes and ears. We are committed to bringing all our space systems to bear in support of warfighting and intelligence needs at home and abroad. Fully integrated National Security Space capabilities will enhance decision-making and warfighting capabilities at all levels.

The integration of our space forces is being done across the DoD and IC. For example, USSTRATCOM has established a Joint Functional Component Command for Space and Global Strike, which will improve integration of space capabilities. And in Fiscal Year 2004, the NRO trained over 4,600 personnel, more than one-third of whom were deployed or deploying US military personnel, on the latest techniques to fully exploit space systems and capabilities to support combat operations.

Our ongoing activities in support of the GWOT highlight the fact that space capabilities have become increasingly integrated in our national intelligence and warfighting operations. As mentioned, we are pursuing additional integration by addressing intelligence and warfighter needs in the nation's next-generation Space Radar program. We have forged an agreement between the Secretary of Defense and the Director of Central Intelligence to ensure the multi-mission needs, requirements, and capabilities will be satisfied for both communities. In response to this agreement, I have restructured the Space Radar Program

Office and relocated it to the Washington, D.C., area to improve stakeholder interaction and collaboration.

### **Produce Innovative Solutions for the Most Challenging National Security Problems**

My fourth priority is to produce innovative solutions for the most challenging national security problems. To counter proliferation of weapons of mass destruction (WMDs), detect emerging terrorist organizations, secure our economic institutions, and defend our homeland, we are fielding space capabilities targeted against a variety of threats. We are working specifically on three needs: Detection, to locate and investigate WMD activity, terrorist threats, missile launches, and so forth; Communication, to deliver actionable information to those in harm's way and those who need to make timely decisions; and Action, to prevent adversaries from harming us here or abroad. We must sustain a solid foundation of science and technology (S&T) to create innovative solutions.

We recently published the DoD Space S&T Strategy, and at our Fall summit we focused on our four S&T vectors: a) Next Generation Launch Capability; b) Operationally responsive, low-cost 500 kg or less satellites and launch capability to support warfighter and intelligence needs; c) Assured freedom of action in space; and d) Integrated Persistent ISR. We will use these operational vectors to help align programs, focus the Department's space S&T investment, and adjust S&T portfolio priorities as needed. We will continue to refine and review these vectors, and ensure our DoD and IC efforts are synchronized.

We explore many new ideas through Joint Experimentation, which also provides a venue for rapid prototyping of emerging technologies. In August 2004, emerging space capabilities were integrated into the Air Force's Joint Expeditionary Forces Experiment.

This experiment focused on Battle Management Command and Control improvements, to advance network-centric operations. In this experiment, the Satellite Interference Response System (SIRS) demonstrated the potential for a deployable defensive counterspace capability to detect, characterize and roughly geolocate interference or jamming of satellite communications links. The information was reported to the Combined Air and Space Operations Center (CAOC), where planners developed options to mitigate the interference. SIRS gave the CAOC the capability to rapidly react to potential satellite jamming to protect critical space capabilities.

In another recent example of rapid prototyping, NRO engineers developed a tool that enables US personnel deployed to Iraq and Afghanistan to access intelligence information computers in the theater. This tool provided our forces efficient and rapid availability to mission critical information. And while the Tactical Satellite (TacSat) program is more traditional, we are also using it to explore small satellite technologies and assess their military applications. The Naval Research Lab hopes to launch TacSat-1 this summer, and Air Force Research Lab (AFRL) will continue to develop the technology with annual TacSat launches.

A promising area of innovation is our work to develop Operationally Responsive Space (ORS) to increase the responsiveness, flexibility, and affordability of our space capabilities. The joint Air Force/Defense Advanced Research Projects Agency (DARPA) Falcon program remains focused on providing low-cost (~\$5M per launch vehicle excluding payload and payload integration) responsive space launch for small payloads (<1000 lbs to low earth orbit) with a first demonstration scheduled this year. AFSPC and AFRL are also working on the Affordable Responsive Spacelift Sub-Scale Demonstrator

(ARES), which will develop a quarter-scale demonstration of a hybrid vehicle with a reusable first stage and an expendable second stage. The goal of ARES is to reduce medium lift costs by three to six times and enable turn-around times of 24-48 hours between launches.

Ultimately, how we employ both rapid launch and small satellites falls under a concept we call Joint Warfighting Space (JWS). JWS is focused on providing dedicated, responsive space capabilities and effects to the Joint Force Commander in support of national security objectives. The DoD Office of Force Transformation, DARPA, and the Air Force are enthusiastic about the potential of JWS. The combined efforts of these initiatives—operationally responsive launch vehicle and satellite development—will transform the delivery of space-based capabilities.

One of the most innovative initiatives we are pursuing calls for exploiting a region we refer to as “Near Space,” which includes altitudes from about 65,000 to 325,000 feet. Using platforms somewhat similar to weather balloons or blimps, we can realize many of the same benefits space provides—persistence, large field of regard and relative immunity from threat—while enjoying the relative ease of access and lower costs typically associated with aircraft. “Near Space” platforms are not intended to replace air or space, but will provide additional capability—such as over the horizon communication and ISR—fully integrated with air and space platforms. AFSPC has conducted a series of “Near Space” demonstrations and the results are extremely encouraging.

What we want National Security Space to provide to our national leaders and Combatant Commanders is simple to state, hard to achieve, and has not changed from last year. We call it “transparency”—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 are constantly working to ensure our S&T efforts result in our ability to always be one step, or more, ahead of our adversaries—to see first, understand first, and act first.

### **Ensure Freedom of Action in Space**

My final priority is to ensure freedom of action in space. America's dependence on space capabilities continues to grow. Our reliance on space has not gone unnoticed by our adversaries. We have been and will continue to be challenged in space and we must be ready to protect our capabilities. Our adversary's attempted denial of our Global Positioning System through jamming during Operation Iraqi Freedom is an indication of our need to protect our space capabilities in the future. To answer this and other emerging threats we will maintain robust capabilities for assured launch, since freedom of action in space begins with the ability to get into orbit. In addition, we will develop the ability to protect our space assets and, if necessary, prevent potential adversaries from using space in a manner hostile to our national interests. Protecting our satellites and the capabilities they provide is both a military and economic imperative for the well being of our Nation.

#### **Improved space situation awareness**

The first step in protecting our space capabilities is improving our Space Situation Awareness (SSA). With SSA we can accurately characterize the space environment, distinguish a malfunction from an attack, and reliably prevent collisions in space. We are implementing a three-phased approach to improve space situation awareness, involving sensors, data fusion, and operating concepts. We are also sustaining and upgrading sensors to keep the Space Surveillance Network healthy, and developing and fielding new ground and



space based sensors. Wargames such as Schriever III, conducted this February, emphasized the importance of a robust and fully integrated SSA architecture. We continue to develop the Rapid Attack Identification Detection and Reporting System (Spiral 1)—with the potential to provide radio frequency interference detection and geolocation for satellite communications, and detection and characterization tools for interference at our ground sites—and the Single Integrated Space Picture (SISP) to provide visibility of theater MILSATCOM support.

### **Development of space control systems**

Because we rely so heavily on space capabilities, we must be prepared, when directed, to confront our adversaries on the “high ground” of space. We continue to develop a range of capabilities to meet current and future potential threats. Our intent is to preclude hostile use of space through diplomatic or other non-lethal means, and if such measures fail, we reserve the right under international law to take military action against an adversary’s space capability in self-defense. To that end we have fielded the ground-based Counter Communications System (CCS), scheduled to achieve full operational capability this year. CCS is ground based, transportable, and intended to disrupt adversary satellite-based communications in a temporary and reversible manner.

### **Conclusion**

I am proud of the accomplishments we have made in National Security Space through my tenure over these past three-plus years. We took several disparate organizations and integrated them in a way that better serves our nation. At the same time, we demonstrated and improved the capabilities our space systems provide on and off the battlefield.

National Security Space remains a work in progress. We are modernizing every major space system and providing new or enhanced capabilities, while sustaining existing constellations that provide critical capabilities to joint warfighters. The complex technologies involved with all of our space systems, the small quantities of critical satellites, and the inability to repair them on-orbit requires significant up-front investment and attention to practices that are more demanding than in other acquisitions. As long as we continue to expect our space systems to provide asymmetric advantages, even after years on-orbit, then we must build systems that are on the leading edge of technology. We are working to minimize difficulties; but as we continue to push the technological envelope, challenging situations will always be part of the equation. I remain highly optimistic about National Security Space's future.

As stated by the Space Commission and last year's *National Commission on Terrorist Attacks Upon the United States* (the 9/11 Commission), our capabilities—in this case our National Security Space capabilities—must be viewed as an integrated whole. Because the military and intelligence elements in space comprise a national security capability, we should keep the functions that oversee them integrated. That is why I strongly recommend that a single individual continue to hold the dual positions of Under Secretary of the Air Force and Director of the NRO, as well as the responsibility as DoD Executive Agent for Space.

I appreciate the continued support the 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.