Congressional Hearing Testimony
for the
Under Secretary of the Air Force
The Honorable Peter B. Teets

Introduction

It is my distinct honor to appear before the Committee today representing the world's finest air and space force, and to be joined by the service leads of our National Security Space activities: General Lance Lord, Commander of Air Force Space Command; Lieutenant General Larry Dodgen, Commanding General, Army Space and Missile Defense Command; Rear Admiral Rand Fisher, Director Naval Space Technology Programs, Space and Naval Warfare Systems Command; and Brigadier General John Thomas, Director, Command, Control, Communications and Computers for the U.S. Marine Corps. Our appearance here, together, underscores the importance of jointness in our National Security Space endeavors.

Given the role of this Committee, and my role in overseeing National Security Space activities as Under Secretary of the Air Force, Director of the National Reconnaissance Office (NRO), and the DoD Executive Agent for Space, I will concentrate my remarks today on the five priorities I have set for our National Security Space 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 FY05 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 decision makers 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, 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 national security space launches planned for CY04, which focus on sustaining and improving existing military and intelligence satellite constellations. This year, we will launch three GPS 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 CY04 – 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 and Air Force Scientific Advisory Board task force on Acquisition of National Security Space Programs, led by Mr. 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 National Security Space (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 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 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're 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 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 National Security Space. 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 National Security Space 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 Operation IRAQI FREEDOM, 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 FY04 and FY05, 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 National Security Space 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 FY04. In FY05, 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 FY07 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 4000 simultaneous networks while hosting up to 6000 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 Humvee, 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 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 FY12.

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 FY05, we plan to focus on concept definition, risk reduction, and systems engineering activities, all leading to a System Requirements Review in third quarter of FY05 and a System Design Review as early as FY06. 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 FY06.

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]/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 FY10.

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. And 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. Space control activities – while taking advantage of space situational awareness – 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 Evolved Expendable Launch Vehicles (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 Operationally Responsive Space (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 decision makers. Our efforts currently fall into three areas: Space Situational Awareness (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 decision-making. 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 FY07, and improve our ability to detect deep space objects by 80% 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 US 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 National Security Space sector. Over the past year, we have worked across the NRO, U.S. Strategic Command, 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 Offensive Counter Space 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 AFB, Colorado. We plan to deliver two more of the first generation units in FY05 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 FY09.

Conclusion

This is an exciting time for the space programs in the Department of Defense 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 CY03 include successful launches of 11 national security satellites and the successful launches of both the Atlas V and Delta IV EELV launch vehicles. 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 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.