DEPARTMENT OF THE AIR FORCE

PRESENTATION TO THE HOUSE ARMED SERVICES COMMITTEE

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SUBCOMMITTEE ON STRATEGIC FORCES

SUBJECT: NATIONAL SECURITY SPACE POSTURE

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DEPUTY UNDER SECRETARY OF THE AIR FORCE FOR

SPACE PROGRAMS

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INTRODUCTION

It is an honor to appear before this Committee as the Deputy Under Secretary of the Air Force for Space Programs, to discuss with you our National Security Space activities. I support the Secretary of the Air Force with his responsibilities as the Service Acquisition Executive for Space Programs and the Department of Defense (DoD) Executive Agent for Space, where his role is to "develop, coordinate, and integrate plans and programs for space systems and the acquisition of DoD space Major Defense Acquisition Programs to provide operational space force capabilities to ensure the United States has the space power to achieve its national security objectives."

The U.S. relies upon space capabilities not only to meet the needs of Joint military operations worldwide, but to underpin our nation's diplomatic, informational, and economic strengths as well. Because of this, it is important to ensure that our National Security Space (NSS) systems and our space professionals are integrated across our peacetime and wartime operations--providing robust and responsive space capabilities around the globe--particularly in Iraq and Afghanistan.

Americans also rely on the access and use of space capabilities in many areas of everyday life. Whether using satellites for navigation, communications, or the forecasting of severe weather, America increasingly depends on its space systems. To ensure the availability of these systems, the National Security Space community continues to program, and provide, for continuity in key mission areas, while simultaneously working to modernize and recapitalize our aging satellite constellations and supporting infrastructure.

At the same time, the global rate of change for technology and the number of nations directly engaged in space continues to increase. As a result, the ability of an adversary to contest our space capabilities is growing. In such an environment, we must improve our space situational awareness (SSA)--enabling a better understanding of objects and their activities in space.

We must ensure mission continuity in several key space capabilities, such as: Strategic Communications; Missile Warning; Launch; and Positioning, Navigation, and Timing (i.e., the Global Positioning System or GPS), while pursuing increased Space Protection. Over approximately a two year period, beginning with the Wideband Global SATCOM (WGS) launch in October 2007, we will deliver five "first of" satellites. These include: WGS; Advanced Extremely High Frequency (AEHF); Space Based Space Surveillance (SBSS); GPS IIF; and Space Based Infrared System (SBIRS) geosynchronous earth orbit (GEO) satellites.

Always seeking ways to improve, we look forward to the recommendations of the Congressionally directed Independent Review and Assessment of DoD Organization and Management for National Security in Space. In the interim, I offer that the Secretary of the Air Force should remain the DoD Executive Agent for Space, and that this position has been critical in aligning space efforts across the DoD and other government agencies.

BACK TO BASICS IN SPACE ACQUISITION

We continue to institutionalize our "Back to Basics" acquisition philosophy, which emphasizes increased discipline in the development and stabilization of requirements, resources, engineering practices, and management. It also promotes a more deliberate

acquisition planning strategy, firmly focused on mission success and delivering on our commitments.

Our acquisition philosophy can be viewed as a continuous process with five distinct but interdependent stages. The first stage is Science and Technology (S&T), where we conduct basic research and explore the possibilities of new technologies. In the second stage, Technology Development, we mature technologies into proven components and subsystems exploiting discoveries made in the S&T stage. The third stage is Systems Development. Here, we take the most promising technologies and mature them to higher technical and manufacturing readiness levels as part of integrated systems which can be produced in operational platforms in the fourth stage, System Production. Thus, technology is matured through the first three stages. We are emphasizing early technology development to ensure mature component technology is available for our production systems. Entering the system production phase with mature technology reduces cost, schedule, and performance risk. This allows confidence in predicting which new capabilities can be delivered when. The fifth stage is Sustainment, where the goal is increasing systems availability while reducing Operations and Support costs. Integration of acquisition and sustainment early in life-cycle development is key to achieving these goals.

A block approach acquisition strategy delivers systems through discrete, value-added increments which reduces production risk, delivers incremental capabilities to the warfighter sooner, and maintains continuity of service. This concept is consistent with current policy specifying “evolutionary acquisition as the preferred strategy” for DoD acquisitions. Specific capability increments are based on a balance of warfighter needs,

delivery timeline, technology maturity, and budget. Well-defined increments help reduce many of the potential instabilities in requirements, budget, and workforce. An overarching goal is increased confidence, both in terms of cost and schedule, for our space acquisition programs. Therefore, I ask for your continued support, not only for the current generation of satellites and supporting technologies, but for the next generation technology development and the generation after next science and technology, to ensure that we are able to continue this block approach strategy.

UPDATE ON SPACE

Today, I would like to briefly discuss some of the achievements we have had over the last year and some of our National Security Space initiatives.

LAUNCH

Over the past year, we launched the last Defense Support Program satellite, our first Wideband Global SATCOM satellite, two additional GPS IIR-M satellites and extended our string of consecutive, successful National Security Space launches.

The December 10, 2007 launch of a National Reconnaissance Office (NRO) satellite marked the 56th consecutive, successful launch of a National Security Space Medium or Heavy payload--extending an incredible record. This unprecedented string of launch successes, which started in 1999, is a testament to the knowledge, skill, and commitment of our space professionals--particularly in the areas of Mission Assurance and attention to detail.

MISSILE WARNING

Our nation continues to rely on space-based missile warning--and for over 35 years, our legacy space-based sensors, in conjunction with ground-based radars, have

done an excellent job of meeting the nation's missile warning needs. On November 11, 2007, the 23rd, and final, Defense Support Program satellite (DSP-23) was successfully launched. This legacy constellation, however, continues to age, while threats such as the proliferation of theater ballistic missiles (TBMs) and advanced technologies continue to grow. These threats are driving the need for the increased coverage and resolution that will come with the Space Based Infrared System (SBIRS).

SBIRS supports four mission areas: missile warning, missile defense, technical intelligence, and battlespace awareness, and will be comprised of both geosynchronous earth orbit (GEO) satellites and highly elliptical orbit (HEO) payloads. The first HEO payload was launched in 2006, and its on-orbit performance is exceeding expectations. Launches of the first SBIRS GEO satellite and the second HEO payload are both scheduled in fiscal year (FY) 2009.

Our funding request supports the procurement of three GEO spacecraft, two additional HEO payloads, plus the necessary ground elements. We continue to work with our industry partners to resolve challenges on the SBIRS GEO-1 spacecraft, specifically with respect to the Flight Software Subsystem, to ensure the successful launch of this critical capability. Our budget request also funds the Third Generation Infrared System program to develop Wide Field-of-View (WFOV) technologies. This is the technology development necessary reduce cost, schedule, and performance risks for the next generation of missile warning satellites.

COMMUNICATIONS

Satellite Communications (SATCOM) is another critical space capability for which we must ensure mission continuity. The U.S. military is a highly mobile and dispersed

force that relies heavily on wideband, protected, and narrowband satellite communications for command, control, and coordination of forces. SATCOM also enables forces to receive real-time images and video of battlefield and targets, thereby accelerating decision-making from the strategic to the tactical levels. These images and video often come from Unmanned Aerial Vehicles (UAVs) controlled via SATCOM links, allowing the UAVs to fly far beyond the line of sight and to collect information without endangering U.S. forces.

On October 11, 2007 we successfully launched the first Wideband Global SATCOM (WGS) satellite as part of the Department's constellation of wideband satellites, significantly increasing the on-orbit capacity--a single WGS satellite has greater capacity than the entire legacy Defense Satellite Communications System (DSCS) III constellation. This success represents the first step in the Department's transition from its aging DSCS satellites to an increased capability for the effective command and control of U.S. forces around the globe. The Department also signed a Memorandum of Understanding with the Department of Defence of Australia on November 14, 2007, forming a partnership for the production, operation, and support of the WGS constellation. Our funding request supports the launch and on-orbit check out for two WGS satellites in FY 2009.

In the protected SATCOM portfolio, this year we are scheduled to launch the first Advanced Extremely High Frequency (AEHF) system--the follow-on to the Department's current Milstar satellites. This initial AEHF launch will complete the worldwide Medium Data Rate (MDR) ring, increasing the data-rate for these low probability of intercept/detection and anti-jam communications from tens-of-kilobytes per second to

approximately a megabyte per second. Our funding request supports the procurement of four AEHF satellites.

The next generation of SATCOM satellites, the Transformational Satellite Communications System (TSAT), will support both wideband and protected requirements. We are continuing with TSAT technology development and risk reduction efforts, and this past year we completed the Systems Design Review (SDR). In 2007, an independent Technology Readiness Assessment determined the program is prepared to enter the next phase of development. With the addition of the fourth AEHF satellite, the Department is currently conducting a MILSATCOM investment review to ensure the program's overall affordability and synchronization with user platforms.

POSITIONING, NAVIGATION AND TIMING

The U.S. Global Positioning System (GPS) continues to be the world standard for positioning, navigation, and timing (PNT). As a result, GPS has been incorporated into military, commercial, and civilian applications, to include navigation, agriculture, banking, cartography, telecommunications, and transportation. Last year the GPS Program Office seamlessly implemented the Architecture Evolution Plan (AEP) upgrade to the existing GPS Operational Control System (OCS). This upgrade increased sustainability and provided the ability to control the new GPS IIF satellites. Perhaps most notably, these upgrades were implemented with no impact to day-to-day operations and did not require any modifications to existing user equipment.

Later this year, there are three GPS IIR-M launches scheduled and we will begin to launch the next generation, GPS IIF, satellites in FY 2009. These satellites, along with their ground control system and associated user equipment, continue to ensure

constellation sustainment, increase the number of on-orbit M-code capable satellites, and introduce the “L5” civil signal. At the same time, the Air Force is developing the next generation of PNT satellites through the GPS III program.

GPS III will offer significant improvements in navigation capabilities by improving interoperability and jam resistance. The procurement of the GPS III system is planned for multiple blocks, with the GPS IIIA portion currently underway. GPS IIIA includes all of the GPS IIF capability plus up to a ten-fold increase in signal power, a new civil signal compatible with the European Union’s Galileo system, and a new spacecraft bus that will allow a growth path to future blocks. As for the development of the ground infrastructure, we recently awarded two contracts for the System Definition and Risk Reduction phase for the associated ground segment, OCX. These two OCX contracts will each deliver prototypes and lead to a competitive selection of a single contractor in late FY09.

SPACE SITUATIONAL AWARENESS

Mission continuity is critical for persistent space based PNT, intelligence, surveillance and reconnaissance, strategic communications, and global environmental monitoring. As nations, and non-nation state actors, demonstrate both the capability and will to disrupt our space operations, we risk losing that continuity. Anti-jam SATCOM technologies, higher power GPS M-Code navigation signals, radiation hardened technology, on-orbit reconstitution, and dispersed ground segments are all part of our improved space survivability. We must also account for the possibility that new capabilities to deny, damage, or destroy our on-orbit assets will be arrayed against us. We are expanding our Space Situational Awareness (SSA) to provide the ability to

fully characterize and understand these new threats as they mature, as well as clearly discriminate between a hostile act and a naturally occurring event. In parallel, we are developing the organizational, operational, and technical enablers that will allow us to react swiftly and decisively when these threats materialize.

New systems that will contribute to SSA include the Rapid Attack Identification Detection and Reporting System (RAIDRS) program, the Space Fence, Space Based Space Surveillance (SBSS), and the Integrated Space Situational Awareness (ISSA) program.

RAIDRS develops ground based systems that rapidly detect, locate, characterize, identify, and report interference with DoD-owned and DoD-used space assets, and it is being developed via a block approach. In the next year, Block 10 will provide initial capabilities that detect and geo-locate satellite communication interference via fixed and mobile ground systems. Future development of the Block 20 system will provide automated data access/analysis, data fusion, and detection support capabilities.

The Space Fence is planned to replace the aging Air Force Space Surveillance System (AFSSS) with a higher radio frequency system to detect and track smaller sized space objects, and provide worldwide coverage for the first time. It expands the terrestrial based detection and tracking capability, supporting Space Situational Awareness while working in concert with other networked sensors.

The SBSS program is planned to deliver optical sensing satellites to search, detect, and track objects in earth orbit--particularly those in geosynchronous orbit--building upon the success of the Space-Based Visible (SBV) technology demonstration.

Surveillance from space will augment our ground sensors, and the initial SBSS Block 10 will replace the aging SBV sensor in 2009.

To combine all of the various inputs and provide a single picture for decision makers, we are also pursuing the Integrated Space Situational Awareness (ISSA) program. When delivered, ISSA will have the capability to acquire, process, integrate, and fuse SSA data to create the awareness we need, with an ability to attribute actions. Currently, our operators and warfighters must assemble an understanding of the global space picture from many disparate sources, including telephone calls, classified chat rooms, intelligence web sites, and imagery feeds. We have acknowledged this shortcoming and have initiated programs to bring data together, filter it for relevance, and aid the commander in making a timely decision that could attribute an attack or malfunction, preserve health of a constellation, or re-task sensors to track a new launch. The cornerstone program for this is the Integrated Space Situational Awareness (ISSA) program, which will interact with the space command and control (C2) system to provide automated decision tools supporting decision making on a timescale appropriate for today's and tomorrow's challenges in space. The space operating environment is becoming increasingly complex; we need to equip our Nation's space operators with the tools necessary to characterize space activities and accurately attribute actions.

OPERATIONALLY RESPONSIVE SPACE

Another key initiative is Operationally Responsive Space (ORS), and I thank you for your continuing support for this program. On May 21, 2007, the Operationally Responsive Space Office was stood up at Kirtland AFB, New Mexico, to develop, acquire, and deploy a tiered capability consisting of responsive spacecraft, launch

vehicles, and ground equipment. The ORS Office is a jointly manned entity that reports to the DoD Executive Agent for Space, and will have representation from the defense, intelligence, civil, and international communities--to include Air Force, Army, Navy, and Marines, personnel from NASA, NSA, NRO, and Sandia National Laboratory--and we are pursuing allied partner representatives. Many other organizations, while not providing direct staff in the office, are planning to establish liaison relationships with the ORS Office to ensure synergy and close coordination.

Through a series of TacSat operational experiments, we are exploring affordable and responsive launch, checkout, and theater integration of space systems to better support the needs of the Combatant Commanders. TacSat experiments will test concepts such as common interfaces, subsystems, new payloads, and new concepts of operations. The 2009 request for the ORS program element funds the TacSat-4 launch and development of TacSat-5, a plug and play spacecraft bus. Additionally, responding to urgent warfighter requirements, vetted by US Strategic Command, the ORS office is initiating communications and SSA programs in 2008 and 2009.

WORKFORCE

Our DoD space professional workforce includes our military Active, Reserve, and Guard components, and our civil service personnel. We are currently coordinating a new DoD Directive that will clearly outline responsibilities within the Office of the Secretary of Defense (OSD) and the Services for the education, training, and management of these critical space professionals.

Looking beyond the DoD, a healthy space industrial base is one of our top priorities. The Space Industrial Base Council (SIBC) which is co-chaired by Secretary

Wynne, as the DoD Executive Agent for Space, with the Director of the NRO, Mr. Scott Large, brings together stakeholders from across government and industry to coordinate actions on critical space industrial base issues. The SIBC has taken a quantitative look at the health of U.S. companies and how they are balancing competitiveness and security concerns. We are all committed to protecting sensitive space technology while allowing our companies to compete internationally. We will continue to strengthen our understanding of the U.S. space industrial base to ensure that it remains viable in the future--we cannot afford to lose this national capability.

I would also like to thank the Committee for its support of the National Defense Education Program (NDEP), which supports scholarships in Math, Science, Engineering, and Foreign Language, with a focus on critical skills for clearable people. The NDEP began in FY06 with $10M, and is funded at $44M in FY08. The Department is requesting $69M for this program in FY09, and I solicit your continued support to ensure we can continue to attract and retain these professionals.

CONCLUSION

We must ensure continuity of service for critical missions such as Missile Warning, Strategic Communications, Launch, and Positioning, Navigation and Timing; while improving our Space Situational Awareness. Our strategy over the recent years is showing promising results, as we continue toward securing the world's best space capabilities today and ensuring the same for our Nation's future generations.

Our Nation prefers to deter or dissuade potential adversaries, and space systems are critical to this strategy. When deterrence and dissuasion are not adequate, we too often must employ our military--and our space systems are even

more critical then. Fortunately, our systems are the envy of the world. Our infrared surveillance satellites are able to detect missile launches anywhere in the world. Our strategic communications systems allow the President precise and assured control over our nuclear forces in any stage of conflict, and our wideband SATCOM systems rapidly transmit critical information between the continental U.S. to our front line forces. Our weather satellites allow us to accurately predict future conditions half a world away as well as in space, while our GPS constellation enables position knowledge down to centimeters and timing down to nanoseconds. These sophisticated systems make each deployed Soldier, Sailor, Marine, and Airman safer, and more capable.

The space constellations that deliver these capabilities are a critical asymmetric advantage. We must ensure the recapitalization and health of these constellations. While these systems are expensive, not having these space capabilities could be even more expensive, both in terms of lives lost and our national defense.

I look forward to continuing to work with this Committee and thank you for your continued support of National Security Space.