

Unclassified Statement of

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Before the

House Appropriations Committee

Defense Subcommittee

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**Lieutenant General Patrick J. O'Reilly, USA
Director, Missile Defense Agency
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Good morning, Mr. Chairman, distinguished Members of the Committee. It is an honor and a greatly appreciated opportunity to testify before you today on the Department of Defense's missile defense program. During FY 2008 and FY 2009 to date, the Missile Defense Agency (MDA) achieved many accomplishments, including: the execution of successful Aegis Standard Missile (SM)-3 Block IA and SM-2 Block IV interceptor salvo flight tests and delivery of 30 additional SM-3 Block IA interceptors (including deliveries to Japan); a Ground-based Midcourse Defense (GMD) intercept test utilizing the entire sensor and command and control suite deployed in the Pacific; emplacement of 2 and refurbishment of 2 additional Ground Based Interceptors at Fort Greely, Alaska; deployment of a AN/TPY-2 radar to Israel; the execution of an experiment involving the closest data collection to date of a boosting missile from a satellite; the safe destruction of a malfunctioning U.S. satellite; repeated demonstration of the atmospheric laser beam compensation during Airborne Laser (ABL) flights; delivery of the first Terminal High Altitude Area Defense (THAAD) unit for testing; and three THAAD intercepts, including the launching of a salvo of two THAAD interceptors using an operational firing doctrine.

In addition to our successes, we also faced challenges developing the BMDS in FY 2008 and FY 2009 to date, including 8 out of 22 flight test delays, 4 target failures out of 18 target launches, one interceptor failure, \$264M cost growth, and management of over \$252M cost and 25 weeks of schedule revisions due to unplanned operational deployments of our systems under development. In response to those challenges, we have worked with our stakeholders to enhance our management oversight, strengthen our relationship with the war fighter community, and improve our acquisition and test planning of the Ballistic Missile Defense System (BMDS). We have initiated four areas of improvement. First, we have adopted a series of initiatives to improve acquisition and oversight of the contracts we will award over the next 18 months. Second, we are institutionalizing MDA and Service roles and responsibilities for elements of the BMDS that the Deputy Secretary of Defense has designated for assignment to a lead Service. Third, we recently initiated a systematic review of BMDS test planning in partnership with the Army, Navy, and Air Force Operational Test Agencies with the support of the Director for Operational Test and Evaluation. Finally, we continue to enhance our regional defenses against Short-, Medium-, and Intermediate-Range Ballistic Missiles (SRBMs, MRBMs, IRBMs), maintain our midcourse defense against IRBMs and Intercontinental Ballistic Missiles (ICBMs), while ensuring we are prepared to leverage the tremendous advantage of emerging technologies to more

economically intercept threat missiles of all ranges in their ascent phase prior to the deployment of countermeasures.

Meanwhile, the proliferation of ballistic missiles of all ranges continues. I defer to the Intelligence Community for more detailed estimates, but current trends indicate that proliferation of ballistic missile systems, using advanced liquid- or solid-propellant propulsion technologies, are becoming more mobile, survivable, reliable, accurate and capable of striking targets over longer distances. Iran has grown its short-range and medium-range missile inventories, while improving the lethality, deployability, and effectiveness of existing systems with new propellants, more accurate guidance systems, and sub-munition payloads. With its recent successful launch of the Safir Space Launch Vehicle on February 2, 2009, Iran also demonstrated technologies that are directly applicable to the development of ICBMs. North Korea deploys a No Dong ballistic missile capable of reaching Japan and South Korea and U.S. bases throughout the region, and continues to develop a new IRBM capable of reaching Guam. Furthermore, North Korea has announced its intent to launch its own SLV over the next couple of days. Likewise, Syria continues to field updated SRBM systems and acquire Scud-related equipment and materials from North Korea and Iran. An additional concern is North Korea's and Iran's repeated demonstrations of salvo launches, indicating large ballistic missile attack raid sizes must be considered in developing the BMDS. In sum, there has been an increase of over 1,100 additional ballistic missiles over the past 5 years,

bringing the total of ballistic missiles outside the U.S., Russia and China to over 5,600.

Missile Defense Approach and Strategy

The mission of the Missile Defense Agency is to develop defenses to protect the U.S. homeland, deployed forces, Allies and friends against ballistic missiles of all ranges and in all phases of flight. Given the unique characteristics of short-, medium-, intermediate-, and long-range ballistic missiles, no one missile defense interceptor or sensor system can effectively counter all ballistic missile threats. War fighters are not only faced with the challenge of intercepting relatively small objects at great distances and very high velocities, but they may have to counter large raid sizes involving combinations of SRBMs, MRBMs, IRBMs, and ICBMs and, in the future, countermeasures associated with ballistic missile attacks. While countermeasures can be developed to degrade the performance of missile interceptor systems, it is much more difficult to develop countermeasures that degrade fundamentally different missile defense interceptor systems operating together in different phases of a ballistic missile's flight. Thus, the most operationally effective missile defense architecture is a layering of endo-atmospheric and exo-atmospheric missile interceptor systems with ground and space sensors connected and managed by a robust command and control, battle management and communication (C2BMC) infrastructure. Moreover, the most cost effective missile defense

architecture is one that emphasizes intercepts during a threat missile's ascent phase of flight.

Status of Missile Defense Interceptor Development in FY 2008 and FY 2009

(to date)

The SRBM defense capabilities of the BMDS consist of the Patriot Advanced Capability-3 (PAC-3), THAAD, and the Aegis SM-2 Block IV and a portion of the SM-3 Block IA missile battle space with associated fire control software. PAC-3 uses hit-to-kill technologies to intercept SRBMs in the atmosphere in the terminal phase of flight. MDA transitioned PAC-3 to the U.S. Army in March 2003, and although we continue configuration management and sustain engineering and architectural responsibility, MDA does not manage the Missile System Enhancement (MSE) or other upgrades to PAC-3.

THAAD. THAAD is uniquely designed to intercept targets both inside and outside the Earth's atmosphere, making the use of countermeasures against THAAD very difficult. THAAD consists of interceptors, command and control, and a THAAD-configured AN/TPY-2 radar to intercept short-range and medium-range missiles using hit-to-kill technologies. THAAD has accomplished 6 intercepts out of 6 attempts against short-range ballistic missiles. Early in FY 2008, soldiers of the Army's 6th Air Defense Brigade operated THAAD as it demonstrated the autonomous integration of the radar, launcher, the fire control communications and the interceptor to intercept a short-range "Scud-type" unitary

target just outside the atmosphere. In June 2008 THAAD demonstrated for the first time the ability to intercept a separating SRBM target. On March 18, 2009, we demonstrated the ability of THAAD to launch on a cue from an Aegis BMD ship (via Link 16) to intercept a separating target high in the earth's atmosphere. This test of an integrated THAAD-Aegis BMD-PAC-3 architecture was the first test involving a salvo launch of two THAAD interceptors. Not only did the primary interceptor hit the target, but the second THAAD interceptor also hit the largest remaining piece of target debris several seconds later.

In FY 2008, THAAD also participated in six war games and exercises to demonstrate its capability to Combatant Commanders, provide training opportunities, and help develop tactics, techniques and procedures. THAAD's involvement in MDA ground tests during this time involved testing THAAD with other components of the BMDS (including PAC-3 and Aegis) for theater and strategic missile defense engagements and provided data to support capability decisions. THAAD will complete testing and analysis to support the FY 2010 Army material fielding review. There has been great interest in the THAAD system from Gulf Cooperation Council countries. Through Foreign Military Sales, the United Arab Emirates Government requested 3 THAAD batteries and additional radars to maximize availability. This will represent a 6.9 billion FMS sale for the U.S. Government. Other countries in the region, including Qatar, have requested performance and cost data for THAAD batteries as well.

Despite THAAD's significant successes, the program continues to struggle with production qualification of several remaining missile components, including ordnance initiation safety and booster separation motor control devices. Successful qualification of these components by the end of FY 2009 is key to gaining the Army's approval for fielding in FY 2010.

Aegis BMD. Aegis Ballistic Missile Defense (BMD) cruisers and destroyers integrated with SM-3 hit-to-kill midcourse interceptors and SM-2 terminal interceptors are fundamental to our ability to surge missile defense capability to protect deployed forces and allies against short- and medium-range ballistic missiles. In FY 2008, Aegis BMD began significant upgrades to the BMD Signal Processor in the Aegis BMD weapon system and delivered 20 SM-3 Block IA interceptors (not including 9 SM-3s delivered to Japan). We also updated software (BMD 3.6) on 8 U.S. destroyers, bringing the total number of U.S. Aegis BMD-capable ships ready on station at the end of 2008 to 18, a year ahead of original schedule. MDA also installed engagement software (3.6) on the Japanese Destroyer Kirishima and began installation of the more advanced C2BMC software (4.0.1) in the U.S.S. Lake Erie. We plan to continue software development for potential installation on all Aegis BMD ships during the next decade to enable the deployment of the more capable SM-3 Block IB interceptor and, eventually, the SM-3 Block IIA interceptor currently being developed with our Japanese partners.

Early in FY 2008, we demonstrated Aegis ability to simultaneously engage two short-range unitary ballistic missile targets using SM-3 Block IA interceptors. In FY 2008, we also completed an end-to-end Multiple Element Integration & Test for the 3.6.1 software and deployed the first East Coast BMD ship (U.S.S. Ramage). In December 2007, we conducted the first intercept of a ballistic missile with an allied Navy ship. Using the SM-3 Block IA, the upgraded Japanese Destroyer successfully intercepted the medium-range separating target in space. This test also marked a major milestone in the growing missile defense cooperative relationship between Japan and the United States. In a subsequent test in November 2008, the Japanese Maritime Self Defense Force performed another successful interceptor launch and fly-out, but a few seconds prior to intercept, the kill vehicle's guidance control motor failed resulting in a test failure. The failure investigation of the SM-3 Block IA continues.

The U.S. Navy and MDA are also collaborating on plans for a near term Sea-Based Terminal defensive capability. MDA is upgrading the Aegis BMD weapon system, and the Navy is upgrading the SM-2 Block IV missile with plans eventually to deploy approximately 70 interceptors to provide a near-term terminal engagement capability on Aegis BMD ships that began in 2008. In June 2008, we intercepted a short-range target in the terminal phase of flight using a dual salvo SM-2 Block IV with modified Aegis ship software. Unlike the SM-3 interceptors, which use hit-to-kill technologies to collide with a target, the SM-2 missiles for

the near-term Sea-Based Terminal defense capability use an explosive charge in very close proximity to the target to destroy the threat missile. Additionally, we continue to develop with the Navy an advanced Sea-Based Terminal defense solution for more effectively countering short-range ballistic missiles in the next decade.

The SM-3 Block IB missile, with Aegis 4.0.1 BMD fire control software is being developed to counter SRBMs and IRBMs. The SM-3 Block IB will have greater reliability, producibility and performance against more advanced threats and clutter during end game. The Aegis 4.0.1 fire-control software will enhance the ability of an Aegis BMD ship to use external sensor data in the formulation of a fire control solution to launch any SM-3 Block IB interceptor and engage a threat ballistic missile. The first flight of the SM-3 IB is scheduled for FY 2010.

With the purchase of Aegis BMD and Patriot Advanced Capability-3 assets, Japan is fielding a multilayered system that is capable of being interoperable with the U.S. system. Japan's C2BMC (JADGE) system will integrate Japanese BMD sensors and interceptors and will be capable of exchanging information with U.S. missile defenses, including the forward-based X-band radar at Shariki and U.S. Aegis BMD ships in the region. The X-band radar at Shariki provides precise early detection and tracking to increase the probability we will destroy any lethal target launched by North Korea. We are continuing our work with Japan to increase Standard Missile-3 range and lethality.

The development of the 21-inch diameter Standard Missile-3 Block IIA interceptor will increase our capability to engage IRBMs and ICBMs from Aegis BMD platforms. The first flight of the SM-3 Block IIA is scheduled for the 2013/2014 timeframe. This effort is one of the largest and most complex cooperative projects ever undertaken between Japan and the United States.

GMD. The IRBM and ICBM defense layers of the BMDS consist of the Ground-based Midcourse Defense (GMD) element today, the SM-3 Block IB with 4.0.1 fire control software (IRBM only), and the SM-3 Block IIA missile with Aegis 5.1 BMD fire control software by the end of the next decade. We recently completed the construction of a second GMD missile field at Fort Greely, Alaska, and a new multi-function test and operational silo, and an additional In-Flight Interceptor Communication System Data Terminal (IDT) at Vandenberg Air Force Base, California. In FY 2008, we refurbished two existing GBIs, delivered two upgraded Exo-atmospheric Kill Vehicles (EKVs), started using a back-up GBI for flight-testing, and emplaced two new interceptors (for a total of 26 GBIs) early in FY 2009. One of our emplaced GBIs was removed in mid-year 2008 in order to provide a flight test interceptor for FTG-05. This also allowed us to have a backup interceptor for a flight test. Unfortunately, we also experienced unexpected health and status indicators of GBIs in their silos that warranted removal to perform unscheduled maintenance and missile refurbishment. Additionally, two of our emplaced GBIs have upgraded kill vehicles to address obsolescence issues.

These upgraded kill vehicles will not be operationally accepted until we have first used them in flight testing in late FY 2009.

Status of Missile Defense Sensor and C2BMC Development in FY 2008 and FY 2009 (to date)

The BMDS relies on space-based (Defense Support Program, space-based infrared satellites and, in the future, an operational Space Tracking and Surveillance System (STSS) constellation), sea-based mobile (Aegis BMD ships and Sea-Based X-band), and ground-based (Upgraded Early Warning Radar (UEWR), AN/TPY-2 and European Midcourse Radars) sensors to provide detection, tracking, classification and hit assessment information. The United States currently operates the Beale and Cobra Dane upgraded early warning radars (UEWRs) in California and Alaska (Shemya) respectively. The Royal Air Force operates the UEWR at Fylingdales Moor in the United Kingdom and, this year, we plan to complete system upgrades to the UEWR at Thule, Greenland. Two AN/TPY-2 radars have been deployed in forward-based modes at Shariki Air Base, Japan, and in southern Israel.

In July 2008 we conducted a major integrated sensor test (FTX-03) of the BMDS sensor and C2BMC architecture involving the simultaneous observation of an IRBM launched from Kodiak, Alaska using five operational BMDS sensors—the Air Force early warning satellite system, the forward-based X-band AN/TPY-2 radar near Juneau, Alaska, the UEWR at Beale, Aegis SPY-1 radar (USS

Benfold), and the Sea-Based X-band radar (SBX) radar in the Pacific Ocean. We were able to conduct simultaneous processing of data from multiple sources, correlate this data into a single track, and develop an engagement solution to achieve the simulated intercept. The threat-representative IRBM was acquired and tracked by several BMDS sensors, which provided data to the system's C2BMC and the Ground-based Midcourse Defense Fire Control in Colorado Springs, Colorado. War fighters conducted the associated radar, fire control, and simulated launcher operations.

FTX-03 collected data and mitigated risks for the GMD flight test 5 (FTG-05), conducted in early FY 2009. During that flight test, the GMD system intercepted an IRBM warhead within an operational integrated framework of sensors similar to what we used for FTX-03. We intended to test the GMD Exo-atmospheric Kill Vehicle against countermeasures, but the inter-stage panels on the target failed to eject when commanded and the countermeasures did not deploy. This was our last test using this particular target configuration. During this test, Aegis BMD performed as expected and conducted a simulated engagement of this IRBM target.

Integrating the BMDS via C2BMC. MDA is developing a Command and Control, Battle Management, and Communications (C2BMC) system that integrates the BMDS elements into a layered defense system. C2BMC will continue leading the NATO C2 BMD integration. Together with the NATO

Active Layered Theater BMD program office, initial development integration tests were completed in November 2008 and January 2009. Key to C2BMC integration is the centralized development of 7 common missile defense kill chain functions called the BMDS “Unifying Missile Defense Functions” (UMDF). The following UMDF will allow Combatant Commanders to automatically and manually optimize sensor coverage and interceptor inventory to defend against all ranges of ballistic missile threats.

Communications links (terrestrial and satellite) together and supports the Unified Missile Defense Functions and ensures that the Combatant Commander can execute his defensive mission. MDA will continue to maintain interface controls with C2BMC. We will complete transition of management of the terrestrial long-distance communications to the Defense Information Systems Agency (DISA) and the satellite communications ground stations to the Services in 2011.

Sensor Registration improves the overall accuracy of the network of sensors to support the C2BMC formation of the system track by ensuring the BMDS understands the relative position of every sensor in the network. Thus, sensor registration enables the integration of different sensor measurements in ballistic missile engagements.

Correlation and System Track functions create a single track of an object using multiple BMD sensors. Since many ballistic missile threats fly over great

distances, the BMD system relies on the correlation of multiple (land, sea, and space) sensors to form a common track picture and complete the target information handover to the weapon system kill vehicle. In 2007 and 2008 we developed requirements, assessed performance, executed hardware-in-the-loop demonstrations, and conducted live test events with Aegis simulated intercepts where system tracks were passed from the AN/TPY-2 through the C2BMC, and C2BMC provided Link 16 tracks to Aegis BMD ships. These demonstrations provided valuable data supporting the fielding of the AN/TPY-2 with C2BMC in Israel and data integration with the Arrow Weapon System for operational use in 2008. A live test of this capability is planned for FTM-15 in FY 2009.

System Discrimination is the BMDS function that determines whether objects resulting from a threat missile launch are lethal or non-lethal using inputs from multiple sensors. Different sensors, depending on location and capability, provide different features about objects associated with a ballistic missile attack. The resulting discrimination information is more accurate than input from any one sensor over a threat missile's trajectory.

Battle Management uses system tracks composed of correlated and discrimination data to identify sensor and weapon system taskings that enable the Combatant Commander to most efficiently implement weapon engagement plans. Fundamentally, engagement coordination combines all elements of UMDF to prioritize and assign threat tracks to specific interceptor systems to implement

operational objectives such as minimizing interceptor use, focusing on protecting a prioritized list of defended assets, or ensuring the highest probability of success. In 2008, C2BMC demonstrated aspects of engagement coordination by controlling AN/TPY-2 in support of the Arrow Weapon System. In GMD flight test 5, C2BMC demonstrated the ability to take cues from overhead non-imaging infrared sensors to develop a boost phase precision cue for the AN/TPY-2. In 2008, THAAD and Patriot demonstrated peer-to-peer engagement coordination in an integrated ground test (GTI-03) by providing in real time the engagement status of each weapon system's ability to engage missiles in accordance with the rules of engagement.

Hit and Kill Assessment uses all available sensor observations of the intercept to confirm a successful hit-to-kill engagement, assess payload type, or identify surviving objects rapidly enough to enable additional intercept attempts by the BMDS if possible.

Status of Missile Defense Technology Development in FY 2008 and FY 2009

(to date)

The greatest enabler of an operationally and cost-effective BMDS is the persistent capability to precisely track cooling missiles and reentry vehicles after boost phase. Early precision track of threat ballistic missiles is the key to destroying ballistic missiles during their ascent phase of flight, which is the most cost and operationally effective means to deny a potential adversary's ability to

launch ballistic missiles of any range and prohibit the employment of multiple reentry vehicles, sub-munitions, and countermeasures. Even partial success of ascent phase intercepts would significantly reduce the number of threat objects to be negated by our midcourse and terminal defenses. In 2010, we plan to demonstrate the technology to track cold bodies from space by using two Space Tracking and Surveillance System (STSS) demonstration satellites that will be launched this summer. Sensors on STSS satellites could provide fire control quality data for engagements of threat reentry vehicles and, when combined with radar data, will provide improved threat object discrimination. Following launch of the STSS, we will enter into a six-month on-orbit check-out period, after which we plan to use both targets of opportunity and dedicated targets to demonstrate STSS capabilities. Knowledge point-based lessons learned from these demonstrations will guide our decisions on the development of an affordable operational space sensor constellation.

The Near Field Infrared Experiment (NFIRE) satellite launched in April 2007 continues to operate in good health. We conducted NFIRE test mission 2B in September 2008 to collect first-of-a-kind high resolution plume and hard body data of a boosting missile at approximately 8 km range from a boosting missile. In this test, we collected multiple frames of data in multiple wavebands, which will help anchor plume to hard body handover algorithms for boost phase intercept applications. We continue to collect data on other targets of opportunity. We also

demonstrated very high capacity laser communications on board the NFIRE satellites.

Our boost phase intercept technologies include the Airborne Laser (ABL), Kinetic Energy Interceptors (KEI), and Net Centric Airborne Defense Element (NCADE) technology programs. In FY 2008 we verified ABL can acquire, track, and perform atmospheric compensation in flight against a non-cooperative target and completed installation of the high power laser on the aircraft. We achieved first light through the Beam Control/Fire Control and successfully fired the complete high energy laser weapon system from the aircraft on the ground in November 2008. We are addressing an optics contamination issue which subsequently occurred, but we currently are on track for a shoot down of a ballistic missile later in 2009.

In 2007 the Kinetic Energy Interceptor (KEI) program adopted a series of knowledge points, emphasizing interceptor development, to assess the progress of the high acceleration booster. In early FY 2008, we completed a static fire test of the second stage of the KEI to verify rocket motor performance under varied environments and loads. During that test, we identified nozzle and ballistics performance problems, which we corrected and successfully demonstrated in September 2008. Additionally, we successfully conducted a static fire test of the first stage in November 2008. We are still resolving technical issues associated with the booster nozzle controller, but current plans are to demonstrate booster

acceleration, velocity, and staging capabilities during KEI's first flight test in 2009.

In addition to developing boost phase technologies, the Multiple Kill Vehicle (MKV) technology program was established for integration of midcourse interceptors to address complex countermeasures by identifying and destroying all lethal objects in a cluster using a single interceptor. In early FY 2008, we delivered the initial models, simulations, and two MKV-L carrier vehicle long-range seeker telescopes for testing, and conducted a successful MKV-L hot firing hover test at the National Hover Test Facility, Edwards AFB.

In 2008 we also demonstrated the NCADE, a promising air-launch missile defense concept that uses a modified AIM-9X seeker to intercept a boosting missile target. Plume-to-hard body aim point transition was completed and sensors on-board an F-15 aircraft successfully detected, acquired, and tracked three stages of a boosting missile target.

BMDS Contingency Deployments in FY 2008

Due to the lack of deployed integrated missile defense capability today, the BMDS is developed so that elements can be deployed on a contingency basis at the request of a Combatant Commander. USSTRATCOM provides the requesting Combatant Commander an assessment of the capabilities and limitations of the developmental capabilities based on test information collected at the time of the Combatant Commander's request. Contingency deployments directed by the Joint

Staff usually require MDA to alter affected development programs' budget execution plans and schedules. An example is the unplanned deployment of the AN/TPY-2 X-band radar to Israel in August 2008 to bolster Israel's regional ballistic missile defense capabilities at a cost of over \$80 million. Additionally, we are involved with the Department's plans to provide options for dealing with any contingency associated with the potential launch of a Space Launch Vehicle from North Korea.

The February 2008 satellite-shoot down is another example of how the Department has leveraged MDA's expertise and products to respond to contingencies. The MDA played a key supporting role in a mission led by USSTRATCOM to destroy a large tank of toxic fuel onboard an out-of-control U.S. satellite about to reenter the Earth's atmosphere. Using several integrated BMDS sensors, other national sensor assets, a modified SM-3 interceptor and Aegis Weapon System onboard the USS Lake Erie, the Navy successfully destroyed the satellite and hydrazine tank. While successful, the time and level of technical expertise it took to plan and orchestrate this mission, the split-second fragility of the once-per-day shot opportunities, and the relatively low altitude of the satellite's decaying orbit deem this not to be an operational anti-satellite capability. The impact to the Aegis BMD program was a 3-month delay at a cost of \$112M to MDA.

U.S.-Israeli Cooperative Programs

The United States and Israel have cooperated on missile defense for over twenty years. Collaborative efforts have grown from early feasibility studies to the development and employment of the Arrow Weapon System, a fully-operational missile defense architecture that is interoperable with U.S. BMDS elements. New joint programs have advanced this cooperation: U.S. and Israeli industrial co-production of Arrow interceptors; the joint Short Range Ballistic Missile Defense Program's David's Sling Weapon System; and an initiative to provide Israel an upper-tier defense system.

The upcoming year will include several significant events that will demonstrate combined U.S. and Israeli Missile Defense capabilities. This week, the first intercept test of the enhanced and co-produced Arrow-2 is planned in Israel against a separating target. MDA will support Israeli tests of the Arrow System this year, conducting tests against the most challenging scenarios to date. Also this year, the Juniper Cobra exercise between European Command (EUCOM) and the Israeli Defense Forces will be the fifth and most complex exercise yet designed. U.S. BMDS elements such as the AN/TPY-2, THAAD and Aegis BMD will participate in these flight tests and exercises to demonstrate the interoperability and develop operational tactics, techniques and procedures associated with this coalition architecture.

MDA and Israel are also jointly developing the David's Sling Weapon System to defend against shorter range threats, to include some ranges that the PAC-3 system cannot engage. The first booster fly-out was successfully conducted in February 2009, with additional interceptor fly-outs scheduled later this year. The first intercept test is scheduled to occur in 2010. Additionally, MDA is coordinating with U.S. Services to identify opportunities for U.S. utilization of the David's Sling Stunner interceptor.

Finally, the United States and Israel have initiated development of an upper-tier component to the Israeli Missile Defense architecture. An Analysis of Alternatives of a land-based SM-3 and a new Arrow 3 missile indicated that the Arrow 3 alternative had a reduced 30 year life cycle cost and potentially better performance to meet Israel's requirements, but was also deemed to have very high schedule and technical risk to meet the Israeli proposed need date. Pending results of current FY 2010 budget deliberations, we will propose an Upper Tier project agreement based on achievement of knowledge points and agreement on funding allocation between the United States and Israel. To mitigate the Arrow 3 high schedule risk, we are pursuing concept development of a land-based variant of the proven Aegis SM-3 missile to meet Israel's more immediate upper tier requirements.

European IRBM and ICBM Defense Capability

We remain committed to working with our NATO partners to address the growing threat from ballistic missiles. The Department has been working to field sensors, interceptors, communications, and the C2BMC infrastructure needed to improve protection of the United States and, for the first time, extend coverage to all European NATO allies vulnerable to long-range ballistic missile attack from the Middle East. This European Capability focuses on relocation of the upgraded midcourse X-band radar, currently located at the Kwajalein test site, to the Czech Republic and the establishment of an interceptor field in Poland, pending ratification of signed missile defense agreements with both governments. We have signed a BMD Agreement and a supplemental Status of Forces Agreement with the Czech Republic. We have signed a BMD Agreement with Poland and continue to negotiate a supplemental Status of Forces Agreement.

This activity is currently under review by the Administration; however, we remain postured, in cooperation with European Command, the Army, and the Air Force, to move ahead with implementation in accordance with Administration direction and Section 233 of the FY 2009 National Defense Authorization Act. The European Capability team will continue planning and design activities as allowable under the Act to minimize delays in the start of Military Construction and site activation activities at both European Capability sites. Unless directed otherwise, it

is my intention to proceed with testing the 2-stage GBI to be ready if the Administration makes a decision to move forward.

International Cooperative BMD Activities

The proliferation of MRBM and IRBM range threat missiles warrants an international coalition approach to employing an operationally effective missile defense. Therefore, under the guidance of OSD(Policy), MDA works closely with Combatant Commanders, the State Department, and other Government Agencies to support their missions and international missile defense goals. Additionally, MDA has significant cooperative missile defense technology development efforts with several European, Middle Eastern, and Asian nations.

MDA international research partnerships and technology programs provide significant contribution to the BMDS. These partnerships include six “framework” agreements, signed by the Secretary of Defense, to facilitate BMD cooperation with Japan, the United Kingdom, Australia, Denmark, Italy and, most recently, the Czech Republic. Additionally, cooperative activities are under consideration with several other nations.

MDA continues to support Administration efforts to propose transparency and confidence-building measures, technology development programs, and missile defense architectures to collaborate with the Russian government. We have additionally invited Russian representatives to view our test flights, which they have attended in the past, and participate in our annual Multinational Conference. I

visited the Russian radar at Gabala, Azerbaijan, to personally determine whether its contribution to U.S. and NATO missile defense efforts would be significant.

Additionally, we have been able to identify several potential areas of collaboration based on U.S. and Russian technological strengths. MDA is ready to support more substantive technical and information-sharing initiatives with Russia.

Enhancing Oversight of MDA and Collaboration with the Services and War

Fighters

As our missile defense development processes have matured, the Department has taken several significant steps to enhance accountability for MDA decision making and oversight by senior Department of Defense officials in collaboration with Combatant Commands and the Services. First, the Deputy Secretary of Defense established the Missile Defense Executive Board (MDEB), chaired by the Under Secretary of Defense for Acquisition, Technology and Logistics (AT&L) and comprised of the following members: Assistant Secretary of State for International Security and Nonproliferation; Under Secretary of Defense for Policy; Under Secretary of Defense for Intelligence; Vice Chairman, Joint Chiefs of Staff; Commander, U.S. Strategic Command; Director of Operational Test & Evaluation (DOT&E); Director of Defense Research & Engineering; Vice Chief of Naval Operations; Assistant Secretary of the Army for Acquisition, Logistics and Technology; Deputy Under Secretary of the Air Force for Space Programs; Director of Program Analysis & Evaluation; and Director, Missile Defense Agency. The

MDEB meets bi-monthly to review program progress, inform missile defense budget decisions, conduct missile defense development portfolio trades, and provide guidance to MDA.

In September 2008, the Deputy Secretary of Defense established “business rules” that outline the transition and transfer of missile defense capabilities between the Missile Defense Agency and the Services. These rules designate that “transfer” of an element of the BMDS begins when the Deputy Secretary of Defense designates a “lead Service” to ultimately receive that capability. MDA is responsible for the development, manufacturing and testing for the lifecycle of BMDS elements, and the Services are responsible for developing the doctrine, organizations, training, logistics, personnel and facilities to effectively field and operate the element sub-systems of the BMDS. Once the MDEB concurs that transfer criteria, approved by the Deputy Secretary of Defense, have been met, the physical accountability and control of missile defense units, operations and support, and infrastructure responsibilities transfer to the lead Service. Research, development, manufacturing, and testing activities remain the responsibility of MDA after a BMDS element capability has been transferred to a lead Service. Accordingly, “hybrid” program offices, consisting of organizations reporting to either MDA or the lead Services will be formed to execute this division of responsibilities once a lead Service has been designated for a BMDS element.

In support of the MDEB as the COCOM advocate for missile defense, USSTRATCOM, in collaboration with the other Combatant Commands, Joint Staff, and the Services, assesses and prioritizes development of future missile defense capabilities. As previously stated, USSTRATCOM also performs Military Utility Assessments (MUAs) to determine the capabilities and limitations of our systems under development when they are considered for contingency deployments by the Combatant Commanders.

Meeting the challenges of countering missile defenses requires the participation of assets in all our Services, thus developing and deploying the BMDS are inherently joint endeavors. The Deputy Secretary of Defense's transition and transfer business rules define the roles and responsibilities of developing and fielding missile defense capabilities. Accordingly, the Services and MDA have begun developing Memorandums of Agreements (MOAs) to define the management and interrelationship of MDA's research, development, testing and manufacturing responsibilities and align them with the Services' Title 10 Operations and Support responsibilities. An "overarching" Army/MDA Transition and Transfer MOA was signed by the Secretary of the Army and me on January 21, 2009, and drafts of the Navy and Air Force MOAs are being coordinated by their respective staffs. A key aspect of the MDA/Service MOAs is the establishment of MDA/Service Boards of Directors to collaboratively review cooperative development, resolve issues

associated with the development and fielding of the Service designated BMDS elements, and raise unresolved issues to the MDEB.

Improving Acquisition of the BMDS

Enhancing System Engineering. The key to the effective and efficient management of the acquisition of a large, technically complex enterprise, such as the missile defense program, is the establishment of management baselines resulting from a disciplined systems engineering process. MDA manages its programs via resource, schedule, operational, technical, contract and test baselines. To strengthen the systems engineering process to create, manage and implement those baselines, MDA designated a senior executive position (designated the “Director for Engineering”) to establish engineering policy, ensure the disciplined practice of systems engineering fundamentals, and develop the systems engineering competencies of the missile defense workforce. The Director for Engineering oversees the career development of an engineering cadre that focuses on leveraging national expertise to assist MDA program managers in the cost, schedule, performance, and risk trades inherent in the development of executable baselines. Additionally, we created engineering “Knowledge Centers” (for Interceptor, C2BMC, Sensor, and Space application disciplines), lead by highly qualified senior engineers from Federally Funded Research and Development Centers (FFRDCs), academia, Government Laboratories, and industry, to mentor and foster the practical application of missile defense engineering competencies and technical problem

skills across the MDA workforce. Finally, to ensure the future health of MDA's engineering workforce, we have dramatically increased the number of recent engineering school graduates inducted into our two-year Career Development Program from 6 to 60 students per semester in order to sustain a population of over 200 entry level government engineers being mentored as they enter the MDA workforce.

Technology Maturity Assessments. To ensure the risk of technology insertion is well understood prior to advanced system development, we set specific knowledge points when sufficient data or knowledge is obtained from discrete events (typically a major test) to make decisions on high-risk aspects of development efforts that demonstrate the maturity of a specific missile defense function or capability. This approach enables us to assign Technology Readiness Levels (TRLs) that support programmatic decisions based upon the proven maturity of a technology under consideration.

Developmental Testing. While the benefit of early operational input to the development of missile defense systems is clear, premature entry into operational development and testing (i.e., before the design and configuration has been stabilized and basic technical concepts have been validated) risks expensive repetition of non-recurring engineering and operational development. To mitigate this risk, MDA is transitioning from "architecture-based" test objectives to "technical parameter-based" objectives identified early in a program to anchor

models and simulations (M&S). These M&S will estimate performance characteristics and cost-effectively demonstrate the mitigation of technical risks prior to committing to full acquisition development of a capability.

Independent Cost Assessments. MDA and the Services are establishing agreements to collaboratively develop high fidelity cost estimates, and we have invited the OSD Cost Analysis Improvement Group (CAIG) to independently assess the assumptions, product description, and cost estimating relationships and methodologies as cost estimates are developed. These cost estimates will be the basis of system engineering trades and programmatic decisions at all levels.

Working with Combatant Commanders. The Combatant Commanders, led by USSTRATCOM, collaborate to develop a bi-annual Prioritized Capability List (PCL) of desired missile defense capabilities to provide the MDEB and MDA. Working with OSD and industry, MDA responds to the PCL with an assessment (called the Achievable Capabilities List) of the technical risk and programmatic feasibility of delivering the requested capabilities in the timeframe specified. STRATCOM then rates the degree to which the ACL satisfies the PCL in the form of a Capability Assessment Report (CAR) that forms the rationale and justification for MDA's budget submission. Though time intensive, this process ensures a comprehensive description of the Combatant Commander's needs and the responsiveness of OSD and MDA to meeting those needs. Additionally,

STRATCOM is a member of MDA's program control boards that manage the configuration of MDA's programmatic and operational baselines.

Cost, Schedule and Performance Trades. Missile defense cost, schedule and performance trade-offs, below the level of the Deputy Secretary of Defense, are executed at the MDEB. MDA uses Earned Value Management (EVM) in collaboration with the Defense Contract Command (and validated by joint MDA/DCMA Integrated Baseline Reviews), to ensure contractor cost, schedule and performance execution is rigorously implemented to rapidly identify program execution issues to expedite resolution. Additionally, knowledge points and definitive test assessments complement EVM to provide early insight into program progress. Execution issues, opportunities, and scope, specification and schedule trades are proposed to the MDEB on an as-needed basis to ensure program expectations are met by senior DoD officials.

Preliminary Design Review. It is the policy of MDA that contracts will be structured using a framework of incremental knowledge points that provide insight into the achievement of meeting contract objectives. These knowledge points form the basis and are in addition to existing entrance criteria for Preliminary Design Reviews (PDRs). PDRs formulate a decision point in which development knowledge point's measure execution maturity and support investment decisions. Evaluations of these knowledge points are conducted at Critical Design Reviews and Preliminary Design Reviews.

Life-Cycle Competition. MDA is standardizing contracting methodologies to remove impediments to the program's life-cycle competitive contracting through a construct that: 1) prohibits limitations on intellectual property and ensures the use of government-funded intellectual property; 2) ensures all government-funded infrastructure is transferable and fully documented; and 3) prohibits exclusive teaming arrangements where appropriate, ensuring the use of only highly qualified suppliers. Every opportunity to foster open competition will be pursued for all phases of missile defense programs.

Nunn-McCurdy Breaches. The Agency realigned the block construct of cost, schedule, and associated performance with delivery of ACL-required capability. We are exploring the possibility of proposing to the OSD comptroller and AT&L that we begin reporting our cost, schedule and performance baselines to Congress at the PE level starting in FY 2011.

Organizational Conflict of Interest. MDA strives to reduce Organizational Conflict of Interest by rigorously applying prohibition of contracting for inherently governmental functions in the transition to new consolidated services contracts, prohibiting developmental contractors from participating in the requirements process, and tightening oversight of potential organizational conflicts involving our system engineers and support contractors.

Acquisition Excellence. Implementation of the functional management construct has resulted in greater focus on our human resources at the enterprise

workforce level. Our functional managers focus on career development of acquisition professionals rather than enhancing skills for current job performance. This often involves transferring personnel after several years in a job to challenge them with new opportunities, education, and give them a greater acquisition experience base over their careers. In the functional acquisition area alone, over twenty very senior program managers or acquisition career field specialists have been moved between programs, bringing with them expertise, knowledge and a fresh focus. We seek to reward excellence with greater opportunities for career development and greater responsibilities.

Contract Management and Oversight. MDA's involvement with the Defense Contracting Management Agency (DCMA) has grown above and beyond our previous use of DCMA only in contract oversight and compliance. For example, we have recently requested that DCMA provide the following: an independent review of the cost growth in our GMD intercept flight tests; assessment of our supply chain vendor viability and compliance with best industry practices; certification in preparation for contract re-competition activities; and an independent assessment of GMD Exo-atmospheric Kill Vehicle (EKV) failures (including a validation that a EKV recently submitted to extensive over-testing is viable and ready for use). Finally, we are assessing how we can benefit from DCMA's risk management best practices.

MDA Contract Cost Overruns

In a March 2009 report, the Government Accountability Office noted that 11 of 14 MDA contractors overran their FY 2008 budgeted costs by \$152 million, or 3.7 percent. STSS accounted for more than 50 percent of the \$152 million FY 2008 overrun. Technical issues caused most of the overruns seen with STSS. Aegis BMD (SM-3 interceptor deliveries), the GMD prime, and MKV (engagement management algorithm development) performed their scope of work under budget. Since current BMDS contracts were initiated, we have had 31 contract realignments, adding nearly \$14 billion to the value of the contracts. MDA realigns contracts as required to accurately reflect contract changes, technical redirection, contractor internal replanning, and impacts of program funding changes. Our contractors' Earned Value Management (EVM) Systems require them to update the Integrated Master Schedule and related Performance Measurement Baseline (PMB) in a timely manner to reflect an accurately planned program after programmatic decisions have been made. This helps ensure cost metrics are realistic and used to understand cost trends, causes, and impacts, which in turn helps ensure continuous management and minimization of cost growth.

While cost overruns are never taken lightly, given the engineering complexity and the technological challenges we encounter in the development of the BMDS, we believe overall our cost variances have been managed well and minimized for this type of effort. As of December 2008, MDA had a \$37 billion

contract budget base allocated to current MDA prime contracts, initiated between 1996 and 2009. With 71 percent of that contract work having been completed, we are estimating a total overrun of \$2.1 billion or about 6 percent. We will continue to conduct a rigorous Integrated Baseline Review process with our contractors to help ensure we have executable programs and use EVM to effectively manage cost, schedule, and technical performance. The cost overruns have been accommodated and addressed within the overall FY 2008 and FY 2009 MDA budget.

MDA and Mission Assurance. During the 1990s and early part of this decade, we learned that missile defense systems have very little tolerance for quality control errors, as we experienced many flight test failures. Out of necessity, MDA has since nurtured a culture of mission assurance within the Agency and within the missile defense industry as quality control and mission assurance remain the Agency's highest priority. The Agency performs routine mission assurance evaluations and has permanent Mission Assurance Representatives at several sites.

Recently, there have been very disappointing lapses in quality management involving several of our industry partners that have impacted system element cost, schedule, and performance. There have been frequent schedule slips on the Space Tracking and Surveillance System program, some resulting in significant delays, due to quality issues caused by lack of discipline and detail in the procedures. Similarly, we have recently suffered over 20 days of manufacturing delays due to a

lack of discipline during EKV assembly and testing. Additionally, we lost almost 6 months of production due to an explosion in the propellant factory in Camden Arkansas, where the boosters for Aegis SM-3 missiles are produced. There are many other examples over the past year. We are working closely with DCMA to hold our industry partners accountable and sufficiently improve their execution of quality control in their manufacturing facilities.

Improving BMD Test Planning

Evaluating the BMDS is likely one of the most challenging test endeavors ever attempted by the Department of Defense. Ideally, comprehensive and rigorous testing is enabled by a stable configuration of the system being tested; a clearly defined threat; a consistent and mature operational doctrine; sufficient resources to repeat tests under the most stressing conditions; and a well-defined set of criteria of acceptable performance. Unfortunately, none of these situations apply to the BMDS. The hardware and software configurations of the BMDS frequently change since the system elements are still under development. There are many significant uncertainties surrounding the nature and specifics of the ballistic missile defense threat. Moreover, the operational doctrine for simultaneous theater, regional, and homeland defense is immature. Finally, costs range between \$40 million to \$200 million per BMDS flight test, making the repetition of a very elaborate flight test using flight conditions similar to previous tests cost-prohibitive.

In light of these challenges, the BMDS performance evaluation strategy is to develop models and simulations of the BMDS and compare their predictions to empirical data collected through comprehensive flight and ground testing to validate their accuracy, rather than physically testing all combinations of BMDS configurations, engagement conditions, and target phenomena. We are changing from an architecture-based approach to a parameters-based approach. The focus of the on-going BMDS test review has been to determine how to validate our models and simulations so that our war fighting commanders have confidence in the predicted performance of the BMDS, especially when those commanders consider employing the BMDS in ways other than originally planned or against threats unknown at this time. Despite this desire to rely on models, the complex phenomena associated with missile launches and associated environments mean that some performance measurements can only be investigated through flight and ground testing of the operational BMDS.

In early 2009, MDA is working in partnership with the BMDS Operational Test Agency (OTA) and the war fighter community to revitalize the missile defense test program and make it more affordable. Using criteria supplied by the OTA, the war fighter, and MDA's system engineers, ground and flight tests are designed to provide data that MDA and the operational test community use to anchor models and simulations and verify system functionality and operational effectiveness.

The BMDS comprehensive test review is being conducted in three phases. In Phase One, MDA and the Army, Navy, and Air Force Operational Test Agencies studied the models and simulations and determined the data needed to accredit them using a comprehensive Verification, Validation, and Accreditation process. Despite our desire to rely on models, they cannot provide all operational performance measurements required to assess the system. Much of the data needed to understand system survivability, reliability, performance in extreme natural environments, and supportability can only be measured through ground and flight tests. In Phase Two of the test review, test objectives and scenarios for a campaign of flight and ground tests are under development. Test personnel are prioritizing test designs based on requirements to determine the system's capabilities and limitations and the need of the Combatant Commanders to field a specific block of missile defense capability. Data from these tests are fed back into the models and simulations in order to make them credibly reflect system performance. These test objectives will not only address data necessary to validate the models of individual missile defense interceptor systems, but will also demonstrate the performance of the BMDS working as an integrated system. During Phase Three of the review, to be completed by the end of May 2009, the funding and infrastructure needed to implement the test campaigns will be addressed. A key cost driver will be the ability to establish an inventory of reliable targets to satisfy test requirements over a variety of flight test regimes.

Flight Test Cancellations. Missile defense ground tests, flight tests and exercises represent a complex, interdependent orchestration of instrumentation, ranges, targets, interceptors, sensors, and war fighters. MDA testers routinely encounter many factors that may disrupt the planned test schedule, including range conflicts, changes in hardware and software status, and real-world events. Constant re-scheduling and deconfliction add to the complexity of MDA test program management. Furthermore, although schedules are important to manage resources, thorough engineering analysis and risk management contribute more to mission assurance, and therefore take precedence over adhering to schedule.

Members of Congress have expressed concern over the Agency's restructuring of GMD FTG-04 (scheduled for the second quarter of FY 2008), a flight test that had already been slipped to accommodate the re-test of FTG-03, which was declared a "no test" because of a target failure. FTG-03a, conducted in September 2007, demonstrated an intercept of a threat-representative IRBM target using operational sensors (Beale) and the operationally configured GBI launched from Vandenberg AFB. As a result of MDA's adherence to test principles and a test strategy developed by the Independent Review Team and the Mission Readiness Task Force (MRTF), which increased the rigor of the readiness review process, the GMD program office identified quality issues on a unit used for flight data collection on the Exo-atmospheric Kill Vehicle to be flown in FTG-04.

After investigation to determine the cause and the development of a corrective action plan, the GMD Program Office determined the test interceptor would not be ready for the test until December 2008. As a result, MDA delayed the intercept portion of this flight test mission in order to address and correct the quality issue and restructured the mission from an Intercept Test to a Non-Intercept Test, designated FTX-03, to demonstrate BMDS multi-sensor fusion functionality with a simulated GBI intercept. MDA executed FTX-03 on 18 July 2008. The test was considered a partial success. While the test successfully achieved a number of test objectives, the STARS/GROW target did not reach the intended simulated intercept point due to the failure of the adapter fairing panels to deploy, which precluded achieving all test objectives. This test served as risk reduction for FTG-05, which achieved a successful destruction of the target warhead in December 2008 (though, again, the fairing panels on the target did not deploy and we were once again unable to achieve a key objective of detecting, tracking and intercepting a target armed with countermeasures). The OTA and the U.S. Strategic Command were informed of the changes to FTG-04.

I want to assure you that MDA is focused on conducting meaningful ballistic missile testing that rigorously demonstrates the capabilities of the BMDS. Executing our testing program in accordance with our testing schedule as established in the Integrated Master Test Plan is one of our highest priorities. Due to the increasing complexity of our test program, we may encounter technical issues

in the future that may necessitate a delay in testing or even test cancellations.

When these issues become apparent, you have my personal commitment that MDA will consult with USD/AT&L, DOT&E and the Operational Test Agencies before deciding to delay or cancel a ballistic missile defense test.

Ballistic Missile Targets

The Missile Defense Agency is fundamentally overhauling the target acquisition program to: 1) match the pace and increasing complexity of BMDS testing; 2) shorten the lead-time to contract, build, and deliver targets; 3) improve target program management; 4) improve target reliability; and, 5) reduce and control target program costs.

Since 2004 we have been transitioning away from the procurement of targets on a mission-by-mission basis through multiple contract vehicles and Federally Funded Research and Development facilities. The procurement of targets as prototypes built one at a time and require unique ground support equipment can no longer work in a test program requiring a flexible targets capability to deliver reliable and cost-effective targets. We began the “Flexible Target Family” (FTF) program in December 2003 to develop a single set of targets with common components that can be tailored to simulate known or potential short-, medium-, or long-range threats. Emphasis on common components and inventory buys down lead times for new missions and facilitates the quick tailoring of missions when needed.

To date, the FTF program has not met cost and schedule expectations. High costs and changes in target requirements led to the discontinuation of all variants except the 72-inch LV-2. We have had to delay the initial launch of the first long-range (72-inch) target until third quarter FY 2009 (for use in FTM-15). The 72-inch target (based on the newer Trident C4 motor) completed qualification testing in extremely rigorous environments in December 2008 and may become the primary long-range target starting this year.

In FY 2008 and FY 2009 to date, we launched 18 targets with four failures. Unfortunately, those failures had significant negative impacts on demonstrating key capabilities for both GMD and THAAD. We had two failures of the STARS target, which we will no longer be launching. Another failure was a foreign made target, and we have determined root cause and corrected that problem for the recent THAAD test. The most recent failure was a Lance target for Aegis last week. A failure investigation for this has just begun.

Target failures impacting our test schedules have driven us to adopt a new approach. First, we have issued a Request for Information from industry to identify all potential sources of targets. After an assessment, we will determine if a competitive acquisition strategy would improve target cost, schedule, and performance issues. Second, we are standardizing target requirements based on intelligence data and no longer precisely defining target scenes. This will allow the Agency to economically purchase greater quantities of targets. Third, to

mitigate the likelihood that target failures will have a severe impact on our flight tests and development programs, we are implementing a “rolling spare” concept by building a target contingency inventory. We plan the acquisition of at least one target in addition to immediate test requirements to be used for future testing.

This additional target could be used for unannounced operational tests or to ensure target manufacturing delivery delays do not cause delays to test events.

We employed this approach in the FTT-10a/b THAAD flight test. Target failure during FTT-10 last September caused us to delay the flight test. We planned the THAAD retest (FTT-10a) to fly the same target (a foreign made asset), and kept a U.S. made backup ready, allowing us to proceed with the test within a month’s time (FTT-10b), if needed.

Funding improvements also will help increase the quantity of targets available for testing. We have adopted a common cost model to help adjust out-year funding requirements with improved accuracy. With the FY 2009 Defense Appropriations Act, we transferred target funding from other program elements to a Test and Targets Program Element and were provided an additional \$32M for FTF to initiate an inventory build up of critical long-lead hardware items.

We are also taking steps to control costs within the targets program. We are improving long-term requirement definition and identifying target cost drivers. We also have made internal management changes within our Targets and Countermeasures program office to improve overall accountability and results.

We are investigating possible changes to our acquisition strategy to include limiting the number of contract vehicles and target types. This will reduce administrative costs and increase the potential for economic order quantity price breaks.

MDA Personnel/BRAC

The 2005 Defense Base Realignment and Closure (BRAC) Commission approved recommendations directing the realignment of several MDA functions from the National Capital Region (NCR) to government facilities at Fort Belvoir, Virginia, and the Redstone Arsenal in Huntsville, Alabama. Specifically, a Headquarters Command Center for MDA will be located at Fort Belvoir, while most other MDA mission and mission support activities originally in the NCR will be realigned to Redstone Arsenal.

In support of these realignments, MDA has awarded contracts to construct two new facilities: a \$38.5 million Headquarters Command Center (HQCC) at Fort Belvoir, and a \$221 million addition to the Von Braun Complex at Redstone Arsenal. Construction of the HQCC will begin this spring, with expected completion and occupancy in Fall 2010. The HQCC will accommodate 292 positions. Construction of the Von Braun III project is already underway. The Von Braun III facility is being constructed in two phases – with the first phase being readied for occupancy in the summer of 2010, and the second phase scheduled for completion and occupancy in the summer of 2011. The transfer of government and

contractor positions from the NCR is in progress. MDA has already transitioned approximately 1,300 of the planned 2,248 positions to Huntsville / Redstone Arsenal.

Conclusion

MDA will strive to improve the effectiveness and efficiency of developing the BMDS. While we are addressing challenges, our record of 16 of 18 intercept attempts over the past three years sends a clear message to potential adversaries considering the acquisition of ballistic missiles. But more work is needed to improve our oversight, collaboration with Combat Commanders and the Services, test planning, and program execution.

Proven missile defense assets can contribute to strategic non-proliferation and counter-proliferation objectives by undercutting the value of offensive ballistic missiles. Deployed missile defenses bolster deterrence, give confidence to our allies and friends by reducing the opportunities for adversarial intimidation or coercion. In countries and regions where offensive missiles have already proliferated and regional tensions have risen, missile defenses can play a key role in the strategy to extend deterrence by creating uncertainty in the minds of the potential adversaries of the effectiveness of an attack on U.S. or allied retaliatory military power. If hostilities break out, missile defenses can limit damage to U.S. and allied critical infrastructure, population centers, and military capabilities for responsive operations.

Again, I greatly appreciate your support as we address issues associated with the BMDS, and I look forward to answering your questions.