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MISSILE DEFENSE

Actions Needed to Improve Transparency and Accountability

Statement of Cristina Chaplain, Director,
Acquisition and Sourcing Management

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Highlights

Highlights of GAO-11-555T, a testimony to Subcommittee on Strategic Forces, Committee on Armed Services, U.S. Senate

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MISSILE DEFENSE

Actions Needed to Improve Transparency and Accountability

Why GAO Did This Study

In order to meet its mission, the Missile Defense Agency (MDA) is developing a highly complex system of systems—land-, sea-, and space-based sensors, interceptors, and battle management. Since its initiation in 2002, MDA has been given a significant amount of flexibility in executing the development and fielding of the ballistic missile defense system. GAO was asked to testify on its annual review of MDA and on progress made to improve transparency and accountability. This statement is based on our March 2011 report..

What GAO Recommends

GAO does not make new recommendations in this testimony but emphasizes the importance of implementing past recommendations, including:

- Establishing and reporting complete, accurate, reliable cost information.
- Strengthening test planning and resourcing.
- Following knowledge-based acquisition practices that ensure sufficient knowledge is attained on requirements, technology maturity, design maturity, production maturity and costs before moving programs into more complex and costly phases of development.

DOD has committed to take action on many of our recommendations.

View GAO-11-555T or key components.
For more information, contact Cristina T. Chaplain (202) 512-4841, chaplainc@gao.gov

What GAO Found

When MDA was established in 2002, it was granted exceptional flexibility in setting requirements and managing the acquisition, in order to meet a Presidential directive to deliver an initial defensive capability in 2004. However, the flexibility also came at the expense of transparency and accountability. For example, unlike certain other Department of Defense (DOD) major defense acquisition programs, a cost, schedule, and performance baseline does not have to be established or approved outside MDA. In addition, while most major defense acquisition programs are required by statute to obtain an independent verification of cost estimates, MDA has only recently developed cost estimates for selected assets and plans to work with DOD's Office of the Director for Cost Assessment and Program Evaluation to develop independent cost estimates for more MDA elements. Further, assessments of a system's suitability and effectiveness in combat have only been accomplished, with limitations, for the currently deployed Aegis Ballistic Missile Defense weapon system.

Since its inception, MDA has employed at least three different strategies to acquire and deploy missile defense systems. Because these changes involved different structures for reporting cost, schedule, and performance data, they have exacerbated transparency and accountability challenges—each time a strategy changes, the connection between the old and new strategy planned scope and resources is obscured.

In 2010, MDA made significant progress in addressing previously reported concerns about transparency and accountability. Specifically, MDA :

- Established resource, schedule, test, operational capacity, technical, and contract baselines for several missile defense systems. It reported these to Congress in its June 2010 BMDS Accountability Report.
- Identified three phases of development where baselines are approved—technology development, product development, and initial production phases—and specified the key knowledge that is needed at each phase.
- Established processes for reviewing baselines and approving product development and initial production jointly with the military services that will ultimately be responsible for those assets.

GAO also reported last year that MDA extensively revised the test plan to increase its robustness and ability to inform models and simulations for assessing missile defense performance.

While it is clear that progress has been made in terms of implementing new acquisition reviews and reporting detailed baselines, there remain critical gaps in the material reported, particularly the quality of the underlying cost estimates needed to establish baselines. Moreover, GAO still has concerns about realism in test planning and acquisition risks associated with the rapid pace of fielding assets. These risks are particularly evident in MDA's efforts to develop systems to support a new approach for missile defense in Europe as well as the Ground-based Midcourse Defense system.

Chairman Nelson, Ranking Member Sessions, and Members of the Subcommittee:

I am pleased to be here today to discuss the transparency and accountability progress made by the Department of Defense's (DOD) Missile Defense Agency (MDA). MDA has been charged with developing and fielding the Ballistic Missile Defense System (BMDS), a system expected to be capable of defending the United States, deployed troops, friends, and allies against ballistic missiles of all ranges in all phases of flight. The BMDS is DOD's single largest acquisition program—spending between approximately $7 billion to $9.5 billion per year – to develop and field nine elements and supporting efforts. The system's architecture includes space-based and airborne sensors as well as ground- and sea-based radars; ground- and sea-based interceptor missiles; and a command and control, battle management, and communications system to provide the warfighter with the necessary communication links to the sensors and interceptor missiles.

In fulfilling this charge, MDA began delivering an initial defensive capability in 2004. In meeting this challenge, MDA was afforded much more flexibility than DOD's other major weapons programs. However, this flexibility also introduced transparency and accountability challenges that persisted after the 2004 date for initial capability. Today, I will highlight significant progress that MDA has recently made to strengthen accountability and transparency and also the shortfalls that still need to be addressed in order to further strengthen MDA's oversight posture and ensure new capabilities are fiscally sustainable for the long term.

Since 2002, the National Defense Authorization Acts have mandated that we prepare annual assessments of MDA's ongoing cost, schedule, testing, and performance progress.[1] In March 2011, we issued our report covering MDA's progress toward achieving its goals during fiscal year 2010 as well as its efforts to improve transparency, accountability, and oversight.[2] My

[1] National Defense Authorization Act for Fiscal Year 2002, Pub. L. No. 107-107, § 232(g) (2001); Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005, Pub. L. No. 108-375, § 233 (2004); National Defense Authorization Act for Fiscal Year 2006, Pub. L. No. 109-163, § 232; John Warner National Defense Authorization Act for Fiscal Year 2007, Pub. L. No. 109-364, § 224 (2006); and National Defense Authorization Act for Fiscal Year 2008, Pub. L. No. 110-181, § 225.

[2] GAO, *Missile Defense: Actions Needed to Improve Transparency and Accountability*, GAO-11-372 (Washington, D.C.: Mar. 24, 2011).

statement today will focus on the issues covered in that report. We conducted this performance audit from March 2010 to March 2011 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. Additional information on our scope and methodology is available in the issued report.

Acquisition Flexibility Given to MDA has Downsides for Oversight and Accountability

MDA is a unique agency with extraordinary acquisition flexibility and a challenging mission, however while that flexibility has helped it to rapidly field systems, it has also hampered oversight and accountability.

Over the years, Congress has created a framework of laws that makes major defense acquisition programs accountable for their planned outcomes and cost, gives decision makers a means to conduct oversight, and ensures some level of independent program review. Application of many of these laws is triggered by the phases of the Department of Defense's acquisition cycle, such as entry into engineering and manufacturing development. Specifically, major defense acquisition programs are generally required by law and policy to do the following:

- Document program parameters in an acquisition program baseline that, as implemented by DOD, has been approved by the Milestone Decision Authority, a higher-level DOD official prior to the program's entry into the engineering and manufacturing development phase.[3] The baseline provides decision makers with the program's best estimate of the program's total cost for an increment of work, average unit costs for assets to be delivered, the date that an operational capability will be fielded, and the weapon's intended performance parameters.

- Once approved, measure the program against the baseline, which is the program's initial business case, or obtain the approval of a higher-level acquisition executive before making changes.

[3] 10 U.S.C. § 2435 requires an approved program baseline description for major defense acquisition programs before the program enters system development and demonstration, production and deployment, and full rate production. The system development phase of the DOD acquisition cycle is now known as the engineering and manufacturing development phase.

- Obtain an independent life-cycle cost estimate prior to beginning engineering and manufacturing development, and/or production and deployment.[4] Independent life-cycle cost estimates provide confidence that a program is executable within estimated cost.

- Regularly provide detailed program status information to Congress, including information on cost, in Selected Acquisition Reports.[5]

- Report certain increases in unit cost measured from the original or current program baseline.[6]

- Covered major defense acquisition programs and subprograms are required to complete initial operation test and evaluation before proceeding beyond low-rate initial production.[7] After testing is completed, the Director for Operational Test and Evaluation assesses whether the results of the test confirm that the system or components are effective and suitable for combat.

When MDA was established in 2002, it was granted exceptional flexibility in setting requirements and managing the acquisition, in order that its BMDS be developed as a single program, using a capabilities-based, spiral upgrade approach to quickly deliver a set of integrated defensive capabilities. This decision deferred application of DOD acquisition policy to BMDS until a mature capability is ready to be handed over to a military service for production and operation. Because the BMDS program has not formally entered the DOD acquisition cycle, application of laws that are designed to facilitate oversight and accountability of DOD acquisition programs and that are triggered by phases of this cycle, such as the engineering and manufacturing development phase, has also effectively

[4] 10 U.S.C. § 2434.

[5] 10 U.S.C. § 2432.

[6] 10 U.S.C. § 2433, also known as "Nunn-McCurdy".

[7] 10 U.S.C § 2399 requires completion of initial operational test and evaluation of a weapon system before a program can proceed beyond low-rate initial production. According to DOD policy, low-rate initial production is intended to result in completion of manufacturing development in order to ensure adequate and efficient manufacturing capability and to produce the minimum quantity necessary to provide production or production-representative articles for initial operational test and evaluation, establish an initial production base for the system; and permit an orderly increase in the production rate for the system, sufficient to lead to full-rate production upon successful completion of operational (and live-fire, where applicable) testing.

been deferred. This gives MDA unique latitude to manage the BMDS and it enabled MDA to begin delivering an initial defensive capability in 2004. However, the flexibility also came at the expense of transparency and accountability.

Specifically, a BMDS cost, schedule, and performance baseline does not have to be established or approved by anyone outside MDA. Recent laws have created some baseline-related requirements for parts of the BMDS.[8] In addition, while most major defense acquisition programs are required by statute to obtain an independent verification of cost estimates, MDA has only recently developed cost estimates for selected assets and plans to work with the DOD Office of the Director for Cost Assessment and Program Evaluation to develop independent cost estimates for more MDA elements. Further, assessments of a system's suitability and effectiveness in combat have only been accomplished, with limitations, for the currently deployed Aegis BMD weapon system. The limited amount of testing completed, which has been primarily developmental in nature, and the lack of verified, validated, and accredited models and simulations prevent the Director of Operational Test and Evaluation from fully assessing the effectiveness, suitability, and survivability of the BMDS in annual assessments. MDA has agreed to conduct an operational flight test in 2012.

As we concluded in a prior report, having less transparency and accountability than is normally present in a major weapon program has had consequences.[9] The lack of baselines for the BMDS along with high levels of uncertainty about requirements and program cost estimates effectively set the missile defense program on a path to an undefined destination at an unknown cost. Across the agency, these practices left programs with limited knowledge and few opportunities for crucial management oversight and decision making concerning the agency's investment and the warfighter's continuing needs. At the program level, these practices contributed to quality problems affecting targets acquisitions, which in turn, hampered MDA's ability to conduct tests as planned.

[8] National Defense Authorization Act for Fiscal Year 2008, Pub. L. No. 110-181, § 223(g); Ike Skelton National Defense Authorization Act for Fiscal Year 2011, Pub. L. No. 111-383, § 225.

[9] GAO, *Defense Acquisitions: Missile Defense Transition Provides Opportunity to Strengthen Acquisition Approach,* GAO-10-311 (Washington, D.C. Feb. 25, 2010).

Numerous Strategy Changes Have Exacerbated Transparency and Accountability Challenges

MDA has employed at least three strategies to acquire and deploy missile defense systems, which has exacerbated transparency and accountability challenges. From its inception in 2002 through 2007, MDA developed missile defense capability in 2-year increments, known as blocks, each built on preceding blocks intended to enhance the development and capability of the BMDS. However, there was little visibility into baseline costs and schedules associated with the systems that comprised the blocks or how the blocks addressed particular threats.

In response to our recommendations, in December 2007, MDA announced a new capabilities-based block structure intended to improve the program's transparency, accountability, and oversight. Instead of being based on 2-year time periods, the new blocks focused on fielding capabilities that addressed particular threats. Because the new block structure was not aligned to regular time periods, multiple blocks were under way concurrently. This approach included several positive changes, including a DOD commitment to establish total acquisition costs and unit costs for selected block assets, including only those elements or components of elements in a block that would be fielded during the block and abandoning deferrals of work from one block to another.

MDA was still transitioning to this new capabilities-based block approach when the Director, MDA terminated it in June 2009. According to MDA, this was done in order to address congressional concerns regarding how to structure MDA's budget justification materials. This termination marked the third acquisition management strategy for the BMDS in the prior 3 years and effectively reduced transparency and accountability for the agency. The agency then began to manage BMDS as a single integrated program but planned to report on cost, schedule, and performance issues by each element within the program.

Changing the acquisition strategy is problematic because each time it is changed, the connection is obscured between the old strategies' scope and resources and the new strategy's rearranged scope and resources. This makes it difficult for decision makers to hold MDA accountable for expected outcomes and clouds transparency of the agency's efforts.

We also reported in December 2010 that the adoption of the European Phase Adaptive Approach (PAA) for deploying missile defense assets has

limitations in transparency and accountability.[10] Specifically, we reported that DOD made progress in acquisition planning for technology development and systems engineering and testing and partial progress in defining requirements and identifying stakeholders but had not yet developed a European PAA acquisition decision schedule or an overall European PAA investment cost. We found that the limited visibility into the costs and schedule for the European PAA and the lack of some key acquisition management processes reflect the oversight challenges with the acquisition of missile defense capabilities that we have previously reported. We concluded that for the European PAA, the flexibility desired by DOD is not incompatible with appropriate visibility into key aspects of acquisition management. Moreover, as DOD proceeds with the European PAA acquisition activities, it is important for Congress and the President to have assurance that the European PAA policy is working as intended and that acquisition activities are cost-effective. We made recommendations also in January 2011 regarding the development of life-cycle cost estimates and an integrated schedule for the acquisition, infrastructure and personnel activities to help identify European PAA implementation risks.[11] DOD partially concurred with the first recommendation and fully concurred with the second.

Prior GAO Recommendations and Congressional Actions to Improve Transparency and Accountability

Congress has taken action to address concerns regarding the acquisition management strategy, accountability, and oversight of MDA. For example, in the National Defense Authorization Act for Fiscal Year 2008, Congress required MDA to establish acquisition cost, schedule, and performance baselines for each system element that has entered the equivalent of the engineering and manufacturing development phase of acquisition or is being produced or acquired for operational fielding.[12] Most recently, the Ike Skelton National Defense Authorization Act for Fiscal Year 2011 requires the Secretary of Defense to ensure that MDA establishes and maintains an acquisition baseline for each program element of the BMDS.[13]

[10] GAO, *Missile Defense: European Phased Adaptive Approach Acquisitions Face Synchronization, Transparency, and Accountability Challenges*, GAO-11-179R (Washington, D.C.: Dec. 21, 2010).

[11] GAO, *Ballistic Missile Defense: DOD Needs to Address Planning and Implementation Challenges for Future Capabilities in Europe*, GAO-11-220 (Washington, D.C.: Jan. 26, 2011).

[12] Pub. L. No. 110-181, § 223(g).

[13] Pub. L. No. 111-383, § 225.

Since our first MDA report in 2004, we have made a series of recommendations to improve transparency and accountability, many of which are designed to adapt the key transparency and accountability features already embedded in the DOD acquisition regulation and apply them to MDA. Some of our key recommendations include:

- Establishing and reporting to Congress costs and unit costs, including development costs in unit costs, including sunk costs in cost estimates, reporting top-level test goals, obtaining independent cost estimates and taking steps to ensure the underlying cost estimates are high quality, reliable, and documented reporting variances.
- Improving transparency by requesting and using procurement funds instead of research, development, testing and evaluation funds to acquire fielded assets.
- Strengthening the test program by establishing baselines for each new class of target in development, including sufficient schedule and resource margin, including spare test assets and targets, and strengthening the role of the Director, Operational Test and Evaluation in assessing missile defense progress.
- Implementing a knowledge-based acquisition strategy[14] consistent with DOD acquisition regulations, and ensure that items are not manufactured for fielding before their performance has been validated through testing.

DOD has committed to take action on many of these recommendations. While agreeing with our recommendations to enhance baseline reporting, there are differences in MDA's perspectives on such issues as sunk costs and changes in unit cost.

MDA Has Recently Made Significant Progress in Increasing Transparency and Accountability

In 2010, MDA made significant progress in implementing some of these recommendations by finalizing a new baseline phase review process in which the agency set detailed baselines for several BMDS elements, or portions of elements, for the first time. Specifically, MDA established resource, schedule, test, operational capacity, technical, and contract baselines for several BMDS components. It reported these to Congress in its June 2010 BMDS Accountability Report.

[14] A knowledge-based acquisition approach is a cumulative process in which certain knowledge is acquired by key decision points before proceeding.

MDA also identified three phases of development where baselines are approved—technology development, product development, and initial production phases—and specified the key knowledge that is needed at each phase. MDA officials stated that they expect that aligning the development efforts with the phases will help to ensure that the appropriate level of knowledge is obtained before the acquisitions move from one phase to the next.

In another key step, approval of the product development and initial production baselines will be jointly reviewed by the Director of MDA and the respective service acquisition executive, as a number of missile defense systems are expected to eventually transition to the military services for operation. In addition, in regard to these new phases, the agency established a process for approving baselines. As a result of MDA's new baseline phase review process, its 2010 BMDS Accountability Report is more comprehensive than its 2009 report.

MDA also undertook a new approach to testing in recent years to address our prior findings. In March 2009, we reported that MDA's Integrated Master Test Plan—its test baseline—was not effective for management and oversight because it was revised frequently, only extended through the following fiscal year and was not well integrated with other key aspects of testing such as target acquisitions.[15] In addition, the BMDS Operational Test Agency identified several limitations in the previous BMDS test program, including unaccredited models and simulations, flight test artificialities, and inadequate modeling of some environmental conditions. Congress also expressed concern with MDA's test approach. For example, in the fiscal year 2008 National Defense Authorization Act conference report, conferees noted that MDA failed to ensure an adequate testing program and that its test and targets program needed to be managed in a way that fully supported high-priority near-term programs.

We reported last year that MDA extensively revised the test plan to address these concerns.[16] MDA's new approach now bases test scenarios on modeling and simulation needs and extends the test baseline to cover the Future Years Defense Program which allows for better estimation of

[15] GAO, *Defense Acquisitions: Production and Fielding of Missile Defense Components Continue with Less Testing and Validation Than Planned,* GAO-09-338 (Washington, D.C.: Mar.13, 2009).

[16] GAO-10-311.

target needs, range requirements, and test assets. Also, as part of its new test plan, MDA scheduled dedicated periods of developmental and operational testing, during which the system configuration will remain fixed to allow the warfighter to carry out training, tactics, techniques, and procedures for developmental and operational evaluation. Additionally, the new test plan is expected to provide sufficient time after test events to conduct a full post-test analysis. As we reported last year, these improvements are important because BMDS performance cannot be fully assessed until models and simulations are accredited and validated and the test program cannot be executed without meeting its target needs.

These steps represent significant progress in providing a better foundation for managing and overseeing the missile defense system. Given the breadth, scope and complexities of systems involved in the missile defense mission and the wide range of stakeholders and gaps in past data, these were not easy achievements. Nevertheless, there is a significant amount of work ahead to ensure oversight and management data is clear, complete, accurate and reliable. Specifically:

- We found that the cost baselines that have been established are not clear, consistent and complete nor are they based on high quality estimates and therefore we remain unable to assess cost progress for the 8th year until MDA develops high-quality, reliable cost estimates. For example, we found that the unit cost baselines and the baselines for portions of and sometimes all the life cycle costs reported to Congress did not provide clear, consistent and complete information. We also assessed the 12 life cycle cost estimates that were the basis for these baselines and found that half did not support the baselines and the other half were insufficient to be considered high-quality, reliable cost estimates.

- Our assessment of the schedule baselines determined that we could not compare the asset delivery schedule to the prior year's baseline because MDA has stopped reporting a comprehensive list of planned asset deliveries.

- Finally, we found the test baseline to be well documented. However, because it is success oriented, any problems encountered in executing the plan can cause ripple effects throughout remaining test events. The frequent changes that continue to occur undermine the value of the test baseline as an oversight tool.

Rapid Pace of Fielding Assets Makes Transparency and Accountability Even More Important

Over the past 10 years, we have conducted extensive research on successful programs and have found that successful defense programs ensure that their acquisitions begin with realistic plans and baselines prior to the start of development. We have previously reported that the key cause of poor weapon system outcomes, at the program level, is the consistent lack of disciplined analysis that would provide an understanding of what it would take to field a weapon system before system development begins. We have reported that there is a clear set of prerequisites that must be met by each program's acquisition strategy to realize successful outcomes. These prerequisites include establishing a clear, knowledge-based, executable business case for the product. An executable business case is one that provides demonstrated evidence that (1) the identified needs are real and necessary and can best be met with the chosen concept and (2) the chosen concept can be developed and produced within existing resources—including technologies, funding, time, and management capacity. Knowledge-based acquisition principles and business cases combined are necessary to establish realistic cost, schedule and performance baselines. Without documented realistic baselines there is no foundation to accurately measure program progress. Our work has shown that when agencies do not follow a knowledge-based approach to acquisition, high levels of uncertainty about requirements, technologies, and design often exist at the start of development programs. As a result, cost estimates and related funding needs are often understated.

MDA has begun to institute some key aspects of a knowledge-based approach to acquisition as we noted. Moreover, in its Ballistic Missile Defense Review, DOD emphasized that it is no longer necessary to pursue a high-risk acquisition strategy that simultaneously develops and deploys new systems. However, we continue to identify and report on areas of high levels of acquisition risk associated with the rapid pace of fielding assets. We see this effect most pronounced in three key areas—testing, the Aegis Ashore program and the Ground-based Midcourse Defense (GMD) program.

- Testing and Targets: As in previous years, failures and delays in testing have continued to delay the validation of models and simulations used to assess BMDS performance. Target availability was a significant, though not the only, driver to the test plan delays. Since 2006, we have reported that target availability has delayed and prompted modifications to planned test objectives. This trend continued in 2010. We reported this year that five tests scheduled for fiscal year 2010 were canceled because of a moratorium on air launches of targets. The moratorium was

imposed following the failure of an air launched target participating in MDA's December 2009 Theater High Altitude Area Defense (THAAD) flight test. A failure review board investigation identified the rigging of cables to the missile in the aircraft as the immediate cause of the failure and shortcomings in internal processes at the contractor as the underlying cause. Additionally, target shortfalls contributed to delays in flight tests, reduced the number of flight tests, and altered flight test objectives.

Another area of risk related to targets identified in this year's report is MDA's extended use of an undefinitized contract action to acquire targets from its incumbent prime targets contractor.[17] This action, signed in April 2010, asked the prime contractor to build a new type of medium-range air-launched target. The contract action initially included three targets; the quantity was then increased to five targets in September 2010. The current "not-to-exceed" level for the contract action is $496 million. MDA has allowed this undefinitized contract action to continue for an extended period. According to MDA officials, the delay in definitization is due to changes in its requirements for the targets, and they anticipate definitization in July 2011, by which time the contract action will have remained undefinitized for about 450 days. MDA officials stated that this new acquisition was to obtain a second procurement source for air-launched targets following the December 2009 THAAD flight test failure. The extended use of undefinitized contract actions has previously been identified by GAO and others as risky to the government. Because contracting officers normally reimburse contractors for all allowable costs they incur before definitization, contractors bear less risk and have little incentive to control costs during this period. The government also risks incurring unnecessary costs as requirements may change before the contract is definitized.

- Aegis Ashore: Aegis Ashore is MDA's future land-based variant of the ship-based Aegis BMD. It is expected to track and intercept ballistic missiles in their midcourse phase of flight using Standard

[17] To meet urgent needs, DOD can issue undefinitized contract actions, which authorize contractors to begin work before reaching a final agreement on contract terms. Undefinitized contract action means any contract action for which the contract terms, specifications, or price are not agreed upon before performance is begun under the action. Department of Defense Federal Acquisition Regulation Supplement 217.7401(d).

Missile-3 (SM-3) interceptor variants as they become available. However, while Aegis BMD has demonstrated performance at sea, these demonstrations used the currently fielded 3.6.1 version of Aegis BMD with the SM-3 IA interceptor, not the newer variant of the Aegis operating system and new interceptor that Aegis Ashore will use. Aegis Ashore is dependent on next-generation versions of Aegis systems—Aegis 4.0.1 and Aegis 5.0—as well as the new SM-3 IB interceptor, all of which are currently under development. Moreover, a series of changes are required to further modify these new variants of Aegis BMD for use on land with Aegis Ashore. These modifications include changes to the Vertical Launching System; suppression or disabling of certain features used at sea; design, integration, and fabrication of a new deckhouse enclosure for the radar, and potential changes to the SM-3 IB interceptor. Changes to those existing Aegis BMD components that will be reused for Aegis Ashore may reduce their maturity in the context of the new Aegis Ashore program, and new features will require testing and assessment to demonstrate their performance. MDA plans to make production decisions for the first operational Aegis Ashore before conducting both ground and flight tests. We concluded in this year's report that it is a highly concurrent effort, with significant cost, schedule and performance risk.

- Ground-based Midcourse Defense: GMD is a ground-based defense system designed to provide combatant commanders the capability to defend the homeland against a limited attack from intermediate, and intercontinental-range ballistic missiles during the midcourse phase of flight. The GMD consists of a ground-based interceptor—a booster with an Exoatmospheric Kill Vehicle on top—and a fire control system that receives target information from sensors in order to formulate a battle plan. GMD continues to deliver assets before testing has fully determined their capabilities and limitations. The Director, MDA testified on March 31, 2011 that he considers the GMD interceptors essentially prototypes. In the urgency to deploy assets to meet the Presidential directive to field an initial capability by 2004, assets were built and deployed before developmental testing was completed. During the ongoing developmental testing, issues were found that led to a need for retrofits. GMD intercept tests conducted to date have already led to major hardware or software changes to the interceptors—not all of which have been verified through flight testing. In addition, manufacturing of a new variant called the Capability Enhancement II is well underway and more than half of those variants have

already been delivered although their capability has not been validated through developmental flight tests. To date, the two flight tests utilizing this variant have both failed to intercept the target. According to MDA, as a result of the most recent failure in December 2010, deliveries of this variant have been halted. Again, because of the urgency to deploy some capability, limited work was undertaken on long-term sustainment for the system which is critical to ensure the system remains effective through 2032. In September 2010, MDA finalized the GMD Stockpile Reliability Program Plan, a key step in developing the knowledge needed to determine the sustainment needs of the GMD system.

Concluding Observations

This year MDA has made significant strides in providing a better foundation for Congress and others to assess progress and hold senior leadership accountable for outcomes. Undoubtable progress has been made in terms of implementing new acquisition reviews and reporting detailed baselines, but critical gaps remain in the material reported, particularly the quality of the underlying cost estimates needed to establish baselines. We look forward to continuing to work with DOD and MDA in addressing these gaps and further strengthening the underpinnings for sound oversight. Moreover, as we have recommended previously, improvements to oversight reporting should be complemented by knowledge-based acquisition approaches that ensure programs complete developmental activities before proceeding into production; that test plans are stabilized and adequately resourced; and that targets used for testing are reliable, available, and affordable. Given the breadth and scope of the European Phased Adaptive Approach it is also important that Congress have assurance that this policy is working as intended and is cost-effective.

Chairman Nelson, Ranking Member Sessions, and Members of the Subcommittee, this completes my prepared statement. I would be happy to respond to any questions you may have at this time.

Contact and Staff Acknowledgments

For questions about this statement, please contact me at (202) 512-4841 or chaplainc@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this statement. Individuals making key contributions to this statement include David Best, Assistant Director; LaTonya Miller; Steven Stern; Meredith Allen Kimmett; Letisha Antone; Gwyneth Woolwine; Teague Lyons; Kenneth E. Patton; Robert Swierczek; and Alyssa Weir.

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