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Report No. DODIG-2012-121

September 7, 2012

# Inspector General

United States

Department of Defense



~~(FOUO)~~ Joint Land Attack Cruise Missile Defense  
Elevated Netted Sensor System Not Ready for  
Production Decision

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## Acronyms and Abbreviations

AoA	Analysis of Alternatives
APB	Acquisition Program Baseline
APUC	Average Procurement Unit Cost
CMDS	Cruise Missile Defense Systems
CPD	Capability Production Document
EMD	Engineering and Manufacturing Development
FYDP	Future Years Defense Program
JCIDS	Joint Capabilities Integration and Development System
JIAMDO	Joint Integrated Air and Missile Defense Organization
JLENS	Joint Land Attack Cruise Missile Defense Elevated Netted Sensor
JROC	Joint Requirements Oversight Council
LRIP	Low-Rate Initial Production
MDA	Milestone Decision Authority
ORD	Operational Requirements Document
PAUC	Program Acquisition Unit Cost
QDR	Quadrennial Defense Review
RDT&E	Research, Development, Test, and Evaluation
TEMP	Test and Evaluation Master Plan
U.S.C.	United States Code



**INSPECTOR GENERAL**  
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September 7, 2012

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE FOR ACQUISITION,  
TECHNOLOGY, AND LOGISTICS  
AUDITOR GENERAL, DEPARTMENT OF THE ARMY

~~(FOUO)~~ SUBJECT: Joint Land Attack Cruise Missile Defense Elevated Netted Sensor  
System Not Ready for Production Decision  
(Report No. DODIG-2012-121)

~~(FOUO)~~ We are providing this report for your information and use. We considered management comments on a draft of this report when preparing the final report. The Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System is a critical part of the Army's future Integrated Air and Missile Defense architecture and is a Joint Service interest program. This report is the second of two reports addressing the acquisition of the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System. The overall expected cost for developing and procuring the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System is \$8.4 billion. In this report, we determined that the Army executed a high-risk acquisition strategy and might be acquiring more systems than needed to support the mission.

DoD Directive 7650.3 requires that recommendations be resolved promptly. The comments from the Director, Defense Procurement and Acquisition Policy, the U.S. Army, Assistant Deputy Chief of Staff, G-3/5/7 and the Cruise Missile Defense Systems Project Office were responsive. We do not require additional comments. We were informed after the issuance of the draft report that our recommendation to the Assistant Secretary of the Army (Financial Management and Comptroller) should have been directed to the Under Secretary for Acquisition, Technology and Logistics. However, actions taken by the Department of the Army and the Under Secretary for Acquisition, Technology and Logistics after issuance of the draft met the intent of the recommendation. Therefore, no additional comments are needed.

We appreciate the courtesies extended to the staff. Please direct questions to me at (703) 604-<sup>DoD</sup>~~(b)~~ (DSN 664-<sup>DoD</sup>~~(b)~~).

DoD OIG: (b) (6)

Jacqueline L. Wicecarver  
Assistant Inspector General  
Acquisition and Contract Management

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# ~~(FOUO)~~ Results in Brief: Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System Not Ready for Production Decision

## What We Did

As part of an audit of the Army's preparation of the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor (JLENS) System program for the low-rate initial production (LRIP) decision, we evaluated the Army's effectiveness in establishing requirements and procuring JLENS.

## What We Found

~~(FOUO)~~ The JLENS Product Manager did not effectively prepare the JLENS program for the LRIP phase of the acquisition process. Specifically, the Product Manager established a high-risk, schedule-driven test strategy. We believe this occurred to prevent placing the program at risk if the LRIP decision had to be delayed because more time was needed to address the program's technical challenges. Also, the Army did not reduce the JLENS Orbit requirement to the quantity needed to support the updated JLENS mission because of disagreement within the requirements community. As a result, the timing of planned test events would not have provided the Milestone Decision Authority (MDA) with sufficient test information to make an informed LRIP decision in September 2012. Further, the JLENS Product Office was at risk of procuring nine more JLENS Orbits (at an estimated cost of \$<sup>DoD OIG: (b) (4)</sup> than needed to support the JLENS mission.

~~(FOUO)~~ We identified potential monetary benefits of \$15.8 billion, \$2.47 billion of funds put to better use (\$<sup>DoD OIG: (b) (4)</sup> billion in procurement funding and \$<sup>DoD OIG: (b) (4)</sup> billion in Research, Development, Test, and Evaluation and Military Construction funding) and \$<sup>DoD OIG: (b) (4)</sup> billion in cost avoidance after FY 2016 if the program is terminated because of performance and cost concerns.

~~(FOUO)~~ In February 2012, the Deputy Secretary of Defense directed the Joint Integrated Air and Missile Defense Organization (JIAMDO) to conduct a study on the need for JLENS in the integrated air and missile defense.

~~(FOUO)~~ On May 24, 2012, the acting Under Secretary of Defense for Acquisition, Technology and Logistics determined that the continuation of the JLENS program was essential to the national security and <sup>PEO MS: (b) (3)</sup>. The acting Under Secretary of Defense for Acquisition, Technology and Logistics also determined that continuing test and evaluation of the two JLENS Engineering and Manufacturing Development (EMD) Orbits was necessary to fully understand the limits of system performance.

## What We Recommend

~~(FOUO)~~ The Director, Defense Procurement and Acquisition Policy, should issue guidance re-emphasizing that Product Managers maintain documentation to support how procurement quantities were established for all weapons systems acquisitions.

~~(FOUO)~~ In addition, the U.S. Army, Deputy Chief of Staff, G-3/5/7, should reassess and determine the appropriate number of systems needed to perform the JLENS mission and fund the program accordingly.

~~(FOUO)~~ Further, the JLENS Product Manager should delay LRIP until developmental and operational testing is completed and the results are available for the MDA to make an informed decision.

~~(FOUO)~~ Lastly, the Assistant Secretary of the Army (Financial Management and Comptroller)

should use the results of the JIAMDO study to determine whether to:

- ~~(FOUO)~~ terminate the program, and
- ~~(FOUO)~~ reprogram the \$<sup>DoD OIG: (b) (4)</sup> in procurement funding that is allocated to JLENS across the FY 2012 to FY 2016 Future Years Defense Program and any unexpended Research, Development, Test, and Evaluation and Military Construction funding.

## Management Comments and Our Response

The Director, Defense Procurement and Acquisition Policy, and the Cruise Missile Defense Systems (CMDS) Project Office agreed with our recommendations. While the U.S. Army, Assistant Deputy Chief of Staff, G-3/5/7 comments did not indicate agreement, their response met the intent of our recommendation. Further, we were informed after the issuance of the draft report that our recommendation to the Assistant Secretary of the Army (Financial Management and Comptroller), should have been directed to the Under Secretary for Acquisition, Technology and Logistics. However, actions taken as a result of the Program Objective Memorandum 2013-2017 decision process and the acquisition decision memorandum issued in response to the program experiencing a Critical Nunn-McCurdy Breach met the intent of the final recommendation.

## Recommendations Table

<b>Management</b>	<b>Recommendations Requiring Comment</b>	<b>No Addition Comments Required</b>
Assistant Secretary of the Army (Financial Management and Comptroller)		4.a. and 4.b.
Director, Defense Procurement and Acquisition Policy		1
U.S. Army, Deputy Chief of Staff, G-3/5/7		2
JLENS Product Manager		3

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# Introduction

## Audit Objective

This is the second of two reports addressing the acquisition of the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor (JLENS) System. The overall objective of the audit was to determine whether the Army was effectively preparing the program for the low-rate initial production (LRIP) phase of the acquisition process. For this report, we evaluated the Army's effectiveness in establishing requirements and procuring JLENS. In our first report, DODIG-2011-091, "The Army Needs to Recoup Funds Expended on Property Damaged in an Accident at a Development Subcontractor's Facility," May 24, 2012, we evaluated the Army's actions and conclusion regarding the liability for the JLENS property damaged in an accident at a subcontractor's facility. See Appendix A for a discussion of the audit scope and methodology and prior coverage. See the glossary for the definition of technical terms.

## ~~(FOUO)~~ Background on JLENS

~~(FOUO)~~ The JLENS program is a Major Defense Acquisition Program (Category ID) that was established in January 1996 and, during the audit, was in the Engineering and Manufacturing Development (EMD) phase of the acquisition process. The Army was developing the JLENS in preparation for a LRIP (Milestone C) decision planned for September 2012. The JLENS Product Office estimates that 14 JLENS systems will cost \$~~(b) (4)~~ for research, development, test, and evaluation (RDT&E) and \$~~(b) (4)~~ for procurement over the life of the program. As of April 16, 2012, the Army had expended \$~~(b) (4)~~ in RDT&E funds for the program.

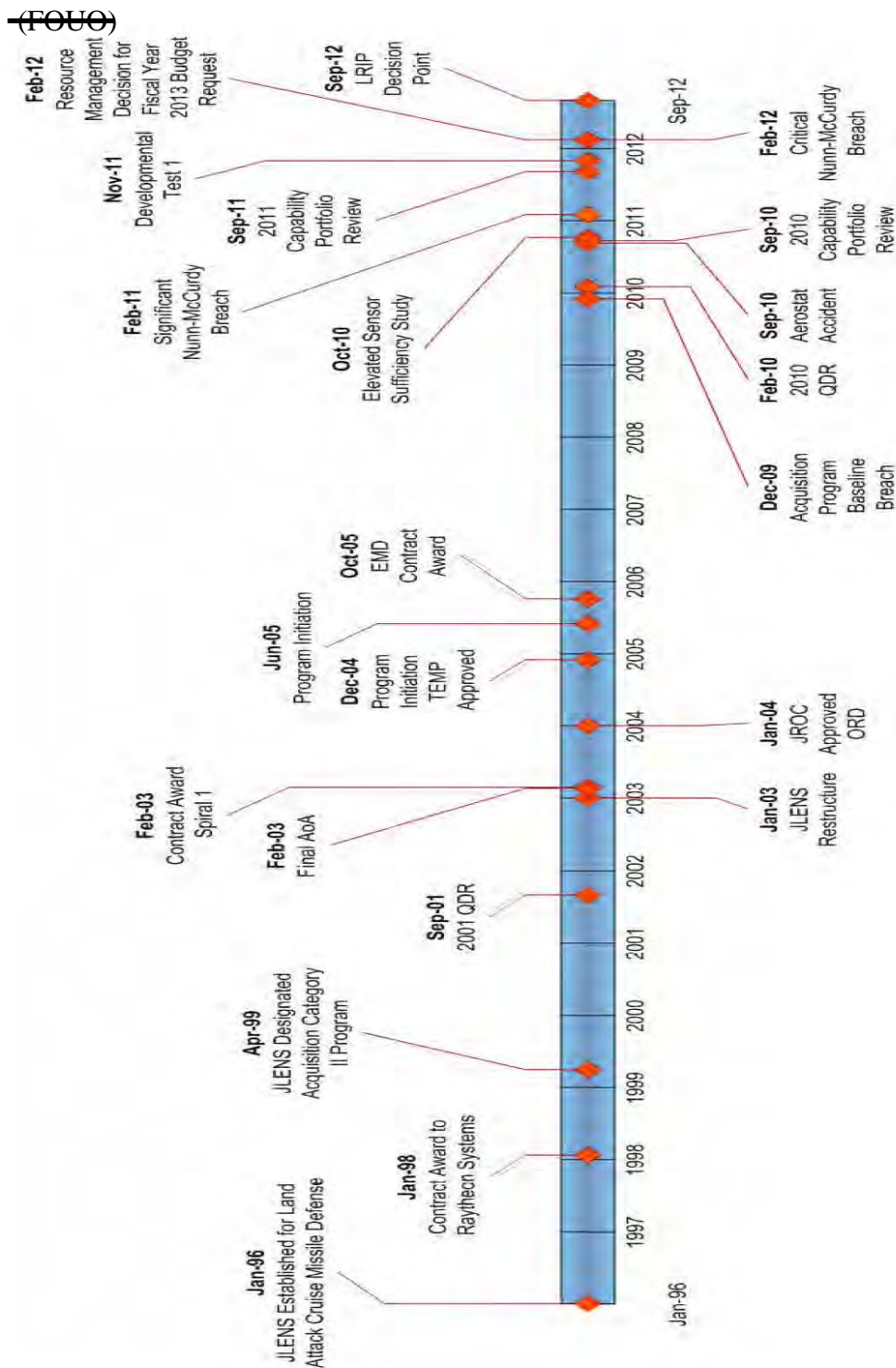
~~(FOUO)~~ The JLENS program has encountered a number of challenges over the years that have caused the program to breach its approved Acquisition Program Baseline (APB).<sup>1</sup> In May 2009, the JLENS program incurred a cost and schedule APB breach as a result of the Army's decision to synchronize the program with the Army Integrated Air and Missile Defense program. In FY 2011, the JLENS EMD phase was delayed another 6 months, and the program was provided additional funding to address engineering challenges related to system integration and the destruction of a prototype. This caused the JLENS program to incur a significant Nunn-McCurdy unit cost breach.

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<sup>1</sup> The APB is an important management document that articulates the approved program's objective and threshold boundaries and links cost, schedule, and performance parameters. A program manager is required to notify the Milestone Decision Authority through a program deviation report when the program manager's current estimate exceeds one or more APB threshold values for cost, schedule, or performance. In addition, the Nunn-McCurdy Act requires DoD to report to Congress whenever a major defense program experiences cost overruns that exceed certain thresholds. See Appendix B for a more detailed explanation and the reporting requirements for APB breaches.

~~(FOUO)~~ See Figure 1 and Appendix C for a chronology of key events and activities that have occurred since the JLENS Product Office was established.

~~(FOUO)~~ Figure 1. Chronology of Key JLENS Events and Activities

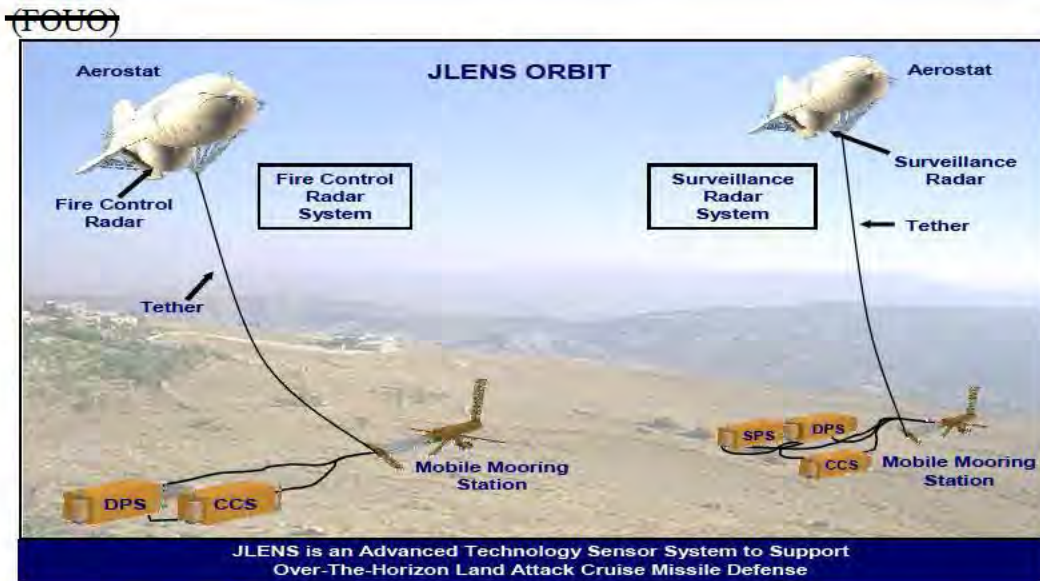


~~(FOUO)~~ **JLENS Mission and System Description**

~~(FOUO)~~ JLENS is a critical part of the Army's future Integrated Air and Missile Defense architecture and is a Joint Service interest program. The JLENS primary missions include supporting cruise missile defense, contributing to the single integrated air picture, supporting combat identification, and threat characterization. JLENS can also perform the following secondary missions: detecting and tracking surface moving targets, detecting and tracking tactical ballistic missiles and large caliber rockets; and extending the communication range by using the elevated platform to overcome terrain restrictions associated with ground-based line-of-sight communications.

~~(FOUO)~~ JLENS employs a dual aerostat-based surveillance and fire control sensor system (or Orbit) to defend against land attack from enemy cruise missiles on American military assets. The surveillance system and the fire control system together make up an Orbit, although each system can operate autonomously. The surveillance system consists of the surveillance radar, the communications and processing work group, and a platform.<sup>2</sup> The fire control system consists of the fire control radar, the communications and processing work group, and a platform. The JLENS Orbit (see Figure 2) will stay aloft up to 30 days, providing 24-hour radar coverage of the assigned areas, and it is the only elevated system to provide persistent performance, long-range surveillance, and fire control sensor capability for Army and other Service programs.

~~(FOUO)~~ **Figure 2. JLENS System**



DPS-Data Processing Station  
CCS-Communications Control Station  
SPS-Signal Processing Station  
Source: JLENS Product Office, Huntsville, Alabama

<sup>2</sup> ~~(FOUO)~~ A platform consists of the aerostat, Mobile Mooring Station, tether, and supporting ground equipment.

~~(FOUO)~~ **Program Management**

~~(FOUO)~~ The Under Secretary of Defense for Acquisition and Technology<sup>3</sup> established the Joint Aerostat Project Management Office (now the JLENS Product Office) in 1996. JLENS is managed as a product in the Cruise Missile Defense Systems (CMDS) Project Office, which reports to the Army Program Executive Office for Missiles and Space. The latter reports to the Army Acquisition Executive and provides overall direction and guidance for missile and space exploitation and control systems development, production, fielding, integration, and life cycle management. The Milestone Decision Authority (MDA) for the JLENS is the Under Secretary of Defense for Acquisition, Technology, and Logistics.

~~(FOUO)~~ **Acquisition Strategy**

~~(FOUO)~~ The JLENS Product Office is using an incremental approach to develop the cruise missile defense capability that directly corresponds to the three blocks of development contained within the JLENS Operational Requirements Document (ORD). Each increment is constructed to provide an evolutionary capability to the warfighter to conduct air-directed surface-to-air missile engagements and support the single integrated air picture and combat identification capabilities. Increment 1 uses a two-spiral approach to develop, demonstrate, and procure the JLENS prototypes. Currently, JLENS is in the second spiral of the first increment. Table 1 depicts the incremental development approach the Product Office is using to develop JLENS.

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<sup>3</sup> In 1999 the position changed to the Under Secretary of Defense for Acquisition, Technology, and Logistics.

~~(FOUO)~~ Table 1. JLENS Incremental Development Approach

~~(FOUO)~~

ORD	ORD Block I	ORD Block II	ORD Block III
	Fire Control Radar with sector search capability. Wide Area (360-degree). Surveillance Radar capability. - PEO MS: (b) (3) [REDACTED] - Aerostat air vehicle. - Threshold requirements.	Fire Control Radar with sector search. Wide Area (360-degree). Surveillance Radar capability. - PEO MS: (b) (3) [REDACTED] Untethered air vehicles. Objective requirements.	Both Fire Control and Surveillance functions resident on one untethered air vehicle. Objective requirements.
SDD Program	Acquisition Increment 1	Acquisition Increment 2	Acquisition Increment 3
	<p><b>Spiral 1 System</b> - One 360-degree surveillance/fire control radar. 38-meter aerostat. Inherent performance capability.</p> <p><b>Spiral 2 System</b> - Two developmental Fire Control Radars with sector search and ORD threshold performance capability. 71 meter aerostat.</p> <p>Two developmental 360-degree Surveillance Radars with ORD threshold performance capability. 71-meter aerostat.</p>	Acquisition strategy, system configuration, and system requirements will be defined during JLENS Acquisition Increment 1 SDD Phase.	Acquisition strategy, system configuration, and system requirements will be defined during JLENS Acquisition Increment 2 SDD Phase.

ORD - Operational Requirements Document  
 ADSAM - Air Directed Surface to Air Missile  
 SDD - System Development and Demonstration (now known as Engineering and Manufacturing Development)

~~(FOUO)~~ The Army used an integrated concept team, with Joint Staff, other Service, and industry participation, to generate the requirements in the initial ORD. The Joint Requirements Oversight Council (JROC) approved the ORD and validated the JLENS key performance parameters on January 22, 2004. The ORD identified a requirement for 14 JLENS Orbits and, as Table 2 shows, established four key performance parameters for the system.

~~(FOUO)~~ Table. 2. JLENS Key Performance Parameters

~~(FOUO)~~

Key Performance Parameter	Threshold and Objectives Description
Support Single Integrated Air Picture	<ul style="list-style-type: none"><li>• 360° Slewable Sectored Fire Control Support Coverage</li></ul>
Integrated Fire Control	<ul style="list-style-type: none"><li>• <small>PEO MS: (b) (3)</small></li><li>• [REDACTED]</li></ul>
Aerial Combat Identification Support	<ul style="list-style-type: none"><li>• <small>DoD OIG: (b) (4)</small></li><li>• [REDACTED]</li><li>• [REDACTED]</li><li>• [REDACTED]</li><li>• [REDACTED]</li></ul>
Net Ready	<ul style="list-style-type: none"><li>• <small>DoD OIG: (b) (4)</small></li><li>• [REDACTED]</li><li>• [REDACTED]</li></ul>

## Policy on Defining Capability Requirements

Chairman of the Joint Chiefs of Staff Instruction 3170.01H, “Joint Capabilities Integration and Development System,” January 10, 2012, establishes DoD policies and procedures for defining system capability requirements through the Joint Capabilities Integration and Development System (JCIDS). The Instruction requires that the program sponsor generate a draft Capability Production Document (CPD) and submit it into the JCIDS process for staffing and validation before the LRIP Decision Review by the MDA.

Chairman of the Joint Chiefs of Staff, “Manual for the Operation of the Joint Capabilities Integration and Development System,” January 31, 2011 (the JCIDS Manual), provides guidelines and procedures for operation of the JCIDS. The JCIDS Manual includes procedures for conducting analysis and developing and staffing the documents that define system capability requirements, including the CPD. The JCIDS Manual states that the CPD is the sponsor’s primary means of providing authoritative, testable, required capabilities for the production and deployment phase of an acquisition program.<sup>4</sup>

## Policy on Planning LRIP

DoD Instruction (DoDI) 5000.02, “Operation of the Defense Acquisition System,” December 2008, establishes a management framework for translating approved capability needs and technology opportunities into stable and well-managed weapon system

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<sup>4</sup> This requirement was also included in earlier versions of the DoDI 5000.2.

acquisition programs. Before an acquisition program transitions from the EMD phase of the acquisition process into LRIP, DoDI 5000.2 requires the program to demonstrate:

- acceptable performance in developmental test and evaluation and an operational assessment,
- mature software capability,
- no significant manufacturing risks,
- acceptable interoperability,
- demonstration that the system is affordable throughout the life cycle, and
- an approved CPD.

The Defense Acquisition Guidebook complements the policies provided in DoDI 5000.2 by providing discretionary best practices that program managers should tailor to the needs of each program. Each chapter lists potential ways the program manager can satisfy mandatory process requirements such as those associated with LRIP. See Appendix B for specific guidance on reporting deviations from the approved APB, test and evaluation activities, and the funding of acquisition programs.

## ~~(FOUO)~~ Internal Controls Over Program Management

~~(FOUO)~~ DoDI 5010.40, “Managers’ Internal Control Program Procedures (MICP),” July 29, 2010, requires DoD organizations to implement a comprehensive system of internal controls that provide reasonable assurance that programs are operating as intended and to evaluate the effectiveness of the controls. We identified internal control weaknesses in test planning and defining requirements. Specifically, we determined that the Product Office delayed test events designed to demonstrate key capabilities until after the LRIP decision. Additionally, neither the Product Office nor any of the organizations involved in establishing the requirement for JLENS revised the quantity of Orbits needed to support the Integrated Air and Missile Defense mission. We will provide a copy of the final report to the senior Army official responsible for internal controls.



## ~~(FOUO)~~ Finding. JLENS Program Not Ready for Low-Rate Initial Production

~~(FOUO)~~ The JLENS Product Manager did not effectively prepare the JLENS program for the LRIP phase of the acquisition process. Specifically, the JLENS Product Manager established a high-risk, schedule-driven strategy, rather than an event-driven strategy that minimized program risks. We believe this occurred to prevent placing the program at risk if the LRIP decision had to be delayed because more time was needed to address the program's technical challenges. In addition, the Army did not reduce its Orbit requirement to the quantity needed to support the updated JLENS mission because of disagreement within the requirements community on the quantity of JLENS Orbits needed to support the Integrated Air and Missile Defense mission. As a result, the timing of planned test events would not have provided the MDA with sufficient test information to make an informed LRIP decision in September 2012. Three developmental test events were delayed until after the scheduled LRIP decision. In addition, the JLENS Product Office, as a result of the updated JLENS mission requirement, was at risk of procuring nine more JLENS Orbits, at an estimated cost of \$ ~~DoD OIG: (b) (4)~~ than needed to support the JLENS mission.

## ~~(FOUO)~~ Product Office Executing a Schedule-Driven Acquisition Strategy

~~(FOUO)~~ The Vice Chief of Staff of the Army directed the JLENS program to accelerate the acquisition to meet emerging cruise missile threats identified in April 2003. In response to that direction, the Department of the Army resourced the JLENS program with additional funding of \$863 million in the Fiscal Year 2005-2009 Program Objective Memorandum to accelerate the development and fielding of an elevated cruise missile defense capability. The acceleration refocused the JLENS program away from a fire control only demonstration toward achieving a full surveillance and fire control capability in FY 2011. The Army Acquisition Executive approved the program restructure in March 2004 and directed the Product Manager to provide a fully funded program at program initiation (Milestone B) within existing funding levels. Although the total funding over the Program Objective Memorandum was adequate to execute the JLENS program through the LRIP decision, the funding was heavily weighted toward the out years. The Army Acquisition Executive further directed the Product Manager to accelerate the development and fielding of the JLENS system capability ~~DoD OIG: (b) (4)~~.

## ~~(FOUO)~~ Compressed Program Test and Demonstration Schedule

~~(FOUO)~~ The resulting initial shortage of funds, plus the required first unit equipped date of FY 2011 imposed schedule challenges that required critical design changes to be deferred until late in the development cycle. Consequently, to meet the accelerated fielding date, the JLENS Product Manager compressed the program test and demonstration schedule.

~~(FOUO)~~ The Defense Acquisition Guidebook states that the phases and decision points of a program can be tailored to meet specific needs if the program manager considers risk and urgency of need and the maturity of the technology. However, the compressed program test and demonstration schedule failed to provide the contractor with sufficient time to resolve technical challenges and software integration problems. Specifically, engineering challenges caused contractor delays with the system integration and testing for three of the four prime items.<sup>5</sup> For example, the JLENS Product Office and an independent review team from the U.S. Army Aviation and Missile Research Development and Engineering Center assessed the technology readiness of the various JLENS system components in preparation for the program initiation decision. Both assessments showed that the fire control radar software was near its desired configuration in terms of performance and had been tested in a relevant environment. The conclusions were based in part on:

- ~~(FOUO)~~ the significant amount of reused software from the ~~(b) (3)~~
- ~~(FOUO)~~ Raytheon's mature software development process, and
- ~~(FOUO)~~ the product line approach taken with software development.

~~(FOUO)~~ However, only about ~~(b) (3)~~ percent of the ~~(b) (3)~~ software was reused with the JLENS fire control radar. The existing ~~(b) (3)~~ software contained approximately ~~(b) (4)~~ source lines of code compared to the ~~(b) (4)~~ lines of code the JLENS was estimated to need. The independent review team did not consider the ~~(b) (3)~~ software fully integrated because no modification to the base software had been developed or tested. In addition, in its Technology Maturity Assessment for the fire control radar, the independent review team stated the writing of an additional ~~(b) (4)~~ lines of code represented a substantial developmental effort, which indicated that the software was not near its intended state and had not been tested.

*~~(FOUO)~~ The writing of an additional ~~(b) (4)~~ lines of code represented a substantial developmental effort.*

~~(FOUO)~~ During our fieldwork, Raytheon, the development prime contractor, stated it was experiencing technical challenges ~~(b) (4)~~, which prohibited the ~~(b) (4)~~. Specifically, ~~(b) (4)~~. In addition, the JLENS ~~(b) (4)~~ did not perform as expected because of compatibility problems with the ~~(b) (4)~~ and ~~(b) (4)~~.

~~(FOUO)~~ These compatibility problems took time to resolve and adversely impacted the test schedule and program costs. Raytheon assigned more than ~~(b) (4)~~ to help resolve the software problems, which increased program costs. However, Defense

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<sup>5</sup> ~~(FOUO)~~ The JLENS prime items consist of: the Platform, Surveillance Radar, Communications and Processing Group, and Fire Control Radar.

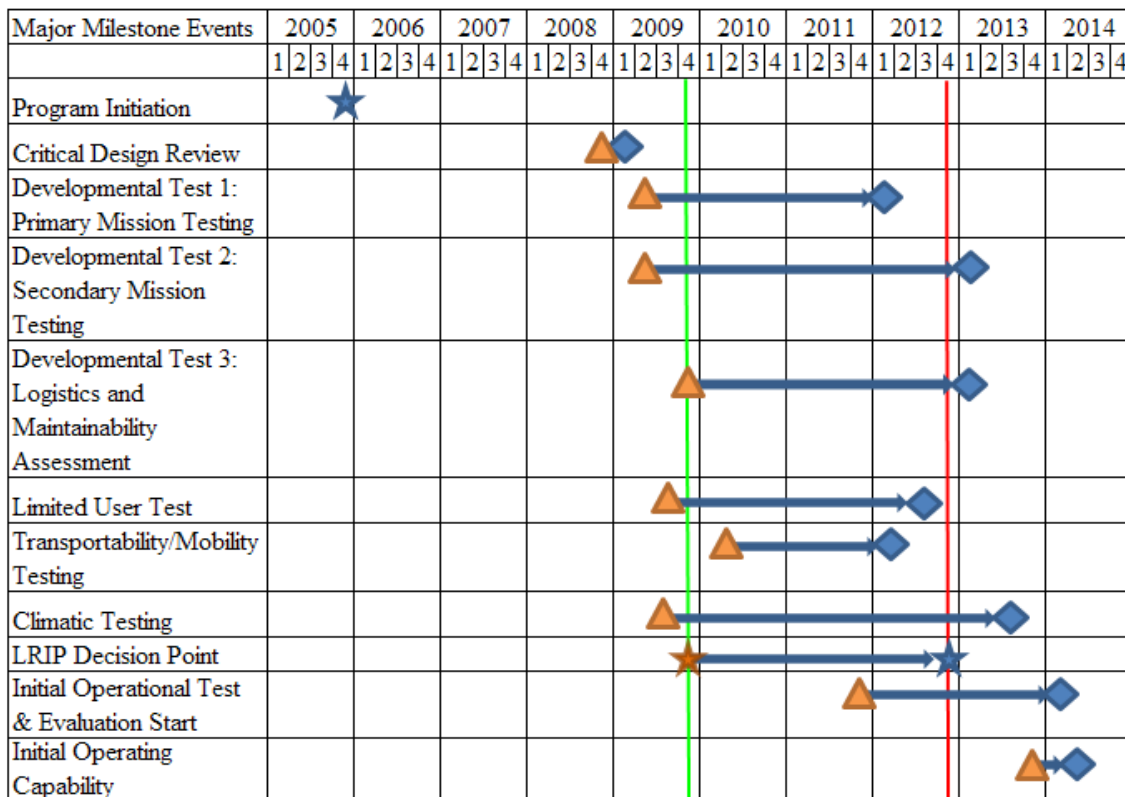
(~~FOUO~~) Contract Management Agency officials stated that even with the additional DoD OIG: (b) (4) support, they were not certain that all software problems could be resolved within the current JLENS schedule.

**(~~FOUO~~) Impact on Key Test Events and the Delivery of Operational Capability**

(~~FOUO~~) Although the JLENS Product Manager and Raytheon were working to reduce the impact of the technical and software integration challenges on the program, their overestimation of the software maturity and inability to overcome the technical challenges with the prime items proved detrimental to the JLENS test schedule. As illustrated in Figure 3, a comparison of the initial program timeline at Milestone B and the timeline obtained from the Product Office which portrayed the test schedule as of November 2011, shows that future milestones and most key test events have been delayed over 2 years from their original estimates.

**(~~FOUO~~) Figure 3. JLENS Key Event Schedule**

(~~FOUO~~)



	Original estimates in the JLENS acquisition strategy		The initial LRIP decision date
	Product Manager's schedule estimates as of November 2011		The currently scheduled LRIP decision date

~~(FOUO)~~ Schedule delays have occurred for nearly all key events. The most significant schedule delay occurred in the area of developmental testing. For example, nearly all planned developmental testing was originally scheduled for completion at or before the LRIP decision. However, the problems integrating the fire control software caused three key developmental test events to be delayed until after the scheduled LRIP decision. Also, only the fire control radar was present during the first developmental test because the Product Office was preparing the surveillance radar to be deployed to support a potential Combatant Commander exercise.

~~(FOUO)~~ In addition, the Product Office will not demonstrate the JLENS performance in <sup>PEO MS: (b) (3)</sup> of the LRIP decision. According to the Director, Operational Test and Evaluation personnel, it was unlikely the JLENS could have achieved the capability before the LRIP decision point because <sup>PEO MS: (b) (3)</sup>, which made it difficult to keep up with <sup>PEO MS: (b) (3)</sup>. Further, the Product Office was unable to secure use of one of the test facilities needed to fully assess <sup>PEO MS: (b) (3)</sup>. A 2006 Product Office study evaluated 12 possible locations to perform the testing. The study recommended that testing be done at Eglin

Air Force Base, Florida; Dugway Proving Ground, Utah; and Utah Test and Training Range, Hill Air Force Base, Utah. <sup>PEO MS: (b) (3)</sup> for JLENS testing because of higher priority program testing, and the other <sup>PEO MS: (b) (3)</sup> facilities could not adequately test the <sup>PEO MS: (b) (3)</sup>.

<sup>PEO MS: (b) (3)</sup>. Without an alternate test site to conduct the testing that was planned to occur at <sup>PEO MS: (b) (3)</sup>, the Product Office and the Director, Operational Test and Evaluation, will not be able to fully assess JLENS <sup>PEO MS: (b) (3)</sup> before the LRIP decision. As a result, the Director, Operational Test and Evaluation, refused to approve the JLENS test strategy unless the program received approval from the JROC to defer the delivery of <sup>PEO MS: (b) (3)</sup>.

~~(FOUO)~~ Accordingly, the JLENS Product Office approached and received approval from the JROC to defer the demonstration of <sup>PEO MS: (b) (3)</sup> until full operational capability. Although the JROC relaxed the need to demonstrate these program requirements, it allows the JLENS to enter production without those capabilities being sufficiently tested to demonstrate that JLENS will be able to operate in a useful way consistent with realistic operational requirements <sup>PEO MS: (b) (3)</sup>. We believe, however, that in order to meet the intent of section 2399, title 10, United States Code (10 U.S.C. § 2399)<sup>6</sup>, this testing should be done before production.

~~(FOUO)~~ Without an alternate test site [they] will not be able to fully assess JLENS effectiveness before the LRIP

<sup>6</sup> See Appendix B for a more detailed explanation and requirements under 10 U.S.C. § 2399.

## ~~(FOUO)~~ JLENS Orbit Requirement Overstated

~~(FOUO)~~ The Army did not reduce its Orbit requirement to the quantity needed to support the JLENS mission.

### ~~(FOUO)~~ *Fourteen Orbits Established as Initial Operational Requirement*

~~(FOUO)~~ The Army was designated the lead Service for requirements generation for the program. As stated, the Army used an integrated concept team to develop the initial ORD. The integrated concept team considered multiple analyses and reviews in determining how many JLENS Orbits should be procured. As specified in the approved 2004 ORD and shown in Table 3, 14 Orbits were needed to perform the anticipated JLENS mission.

~~(FOUO)~~ Table 3. JLENS Orbits Needed to Perform Mission Sets

~~(FOUO)~~

Unit Assigned	JLENS Orbits
Operational	10
Strategic Reserve	3
Training	1
<b>Total</b>	<b>14</b>

~~(FOUO)~~ The initial JLENS Orbit requirement was derived from the JLENS Analysis of Alternatives (AoA) that was completed in February 2003. The U.S. Army Air Defense Artillery School prepared the AoA to evaluate the JLENS and other candidates that could potentially meet the requirements for a system to detect, track, and report on low-altitude aerial threats. The AoA quantity analysis considered sensor requirements in four different terrain scenarios: northeast Asia, southwest Asia, the Balkans, and the Caspian Sea. For each of these terrain scenarios, two different computer models were used to complete the analysis: Extended Air Defense Simulation and Composite Coverage.

- ~~(FOUO)~~ The Extended Air Defense Simulation model provides a theater-level simulation of air and missile warfare. It simulates the effectiveness of theater missile defense and air defense systems against the full spectrum of air and missile threats. The simulation model is intended to accurately determine how well a system will fulfill operational requirements.
- ~~(FOUO)~~ The Composite Coverage model uses data, such as terrain elevation, sensor location, sensor minimum and maximum range, and sensor and target altitude, to calculate and display coverage for sensors deployed in an area of operation.

~~(FOUO)~~ The data analysis using the Extended Air Defense Simulation and Composite Coverage data for the four terrain scenarios resulted in the recommended quantity of JLENS radars. The AoA study quantity analysis identified that a minimum of

(~~FOUO~~) 10 surveillance and 15 fire control sensors (radars) were required to support the JLENS mission need in the major theaters of interest. The JLENS quantity recommendation was in terms of individual surveillance and fire control radars, not Orbits, and included radars for training and maintenance.

(~~FOUO~~) The Army was unable to provide any support for how those quantities translated into the ORD requirement of 14 JLENS Orbits. Although the AoA contained a separate analysis of cost that captured life cycle cost to procure, operate, and support 14 JLENS Orbits, the AoA failed to describe how the Orbit quantities in that analysis crosswalked to those in the sensor requirement quantity analysis. We met with representatives from the Army's Capabilities Development Integration Directorate, Requirements Determination Division, about the lack of supporting documentation for the quantity. They stated that it was determined that the JLENS system was optimized when it operated as an Orbit consisting of one surveillance and one fire control radar per Orbit and that most likely the 25 radar systems had been simply rounded up to 28 to establish the procurement quantity of 14 Orbits. The estimated procurement cost for 14 Orbits was \$ DoD OIG: (b) (4)

(~~FOUO~~) *Defense Procurement and Acquisition Policy should issue guidance reemphasizing the requirement for program managers to maintain requirement documents that show the rationale for how the procurement quantities were established for all weapon systems.*

### **(~~FOUO~~) Subsequent Reviews Show Fewer JLENS Orbits Needed**

(~~FOUO~~) During fieldwork, we identified two sufficiency studies and two capability portfolio reviews that reassessed how many Orbits were needed to support the Integrated Air and Missile Defense Architecture after the JLENS program was initiated. In each case, the subsequent reviews concluded fewer Orbits were required.

### **(~~FOUO~~) JLENS Elevated Sensor Sufficiency Studies**

(~~FOUO~~) In December 2008, the Joint Integrated Air and Missile Defense Organization (JIAMDO) and the Army G-8 initiated the JLENS Elevated Sensor Sufficiency Study at the request of the Commanding General of the U.S. Army Air Defense Artillery School to address concerns that the JLENS AoA conclusions were dated and needed to be revalidated. The study was intended to identify the:

- (~~FOUO~~) existing sufficiency demands for JLENS capabilities,
- (~~FOUO~~) Service or Joint capabilities that could perform the same missions or portions of the mission, and
- (~~FOUO~~) ranges of Joint capability best filled by JLENS, or where the Joint Force Commander could choose to employ either JLENS or alternative capabilities to achieve a particular effort.

(~~FOUO~~) JLENS was assessed within the context of two other elevated sensors, the PEO MS: (b) (3) The deployment simulations evaluated during the study included a major combat operation, a

(~~FOUO~~) conventional campaign, and a homeland defense scenario. The study identified which of the available numbers of JLENS, <sup>PEOMS: (b) (3)</sup> [REDACTED] could meet the demand for a particular Orbit requirement. For all surveillance and fire control requirements, the study determined whether the Orbit should be, could be, or should not be JLENS. The study identified ranges of operational JLENS Orbits required to fulfill the various deployment assumptions, some of which were lower than the JLENS established procurement quantity.<sup>7</sup>

(~~FOUO~~) Several Army G-3/5/7 representatives we met with stated that the Army disagreed with the study's findings because the study deviated from the operation plans contained in the approved multi-Service force development, was out of step with policy because it was based on worst case scenario, and did not fully address force structure. The Army G-3/5/7 representatives stated these differences caused the recommended range of Orbits to be overstated. In September 2011, the JIAMDOD representatives updated the study to reflect new strategic guidance. Based on the updated analysis, the JIAMDOD representatives concluded that an even lower number of Orbits were required to support the single most stressing scenario.

### (~~FOUO~~) Capability Portfolio Reviews

(~~FOUO~~) The Secretary of the Army initiated the Capability Portfolio Review process to assess requirements and investments across portfolios of Army capabilities. The JLENS requirement was examined as part of the 2010 and 2011 air and missile defense portfolio reviews. The Army G-3/5/7, Army G-8, and the Assistant Secretary of the Army for Acquisition, Logistics, and Technology contributed to both reviews. According to Army personnel familiar with the reviews, the group considered changes in the force-sizing construct guidance since the ORD was developed, reexamined the cruise missile threat, and considered the current fiscally constrained environment in developing its air and missile defense investment recommendations.

(~~FOUO~~) **Changes in the Force-Sizing Construct Guidance.** The force-sizing construct has evolved considerably since the development of the JLENS ORD in 2004. The force-sizing construct guidance considers assessments of threats and challenges that could

*(~~FOUO~~) The force-sizing construct has evolved considerably since the development of the JLENS ORD...*

confront the U.S. and its allies, the operational and force management requirements of the force, and provides a sense of the overall level of resources that may be available and appropriate for the defense of the nation and its interests. The force-sizing construct is a key part of the defense strategy and is derived from the defense objectives. The requirement for 14 JLENS Orbits was

influenced using the force-sizing construct guidance contained in the 2001 Quadrennial Defense Review (QDR).

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<sup>7</sup> (~~FOUO~~) The range recommended by the study does not include any Orbits for sustainment or training purposes and is classified beyond the level of this document.

~~(FOUO)~~ DoD has conducted two such reviews since the JLENS requirement was established, most recently in 2010. Unlike earlier reviews that called for U.S. forces to be able to fight and win two major regional conflicts, the 2010 QDR asserts that U.S. forces must be capable of conducting a wide range of operations under a range of different circumstances, including homeland defense and deterrence as well as defeating regional aggressors.

~~(FOUO)~~ **Reexamined the Cruise Missile Threat.** The Vice Chief of Staff of the Army accelerated the JLENS Program in April 2003 to meet the emerging cruise missile threat.

~~(FOUO)~~ *The emerging  
PEO MS: (b) (3)  
as quickly as  
originally projected.*

However, Army G-8 representatives familiar with the evaluation performed during the capability portfolio reviews stated that ~~PEO MS: (b)(3)~~ quickly as originally projected. The 2010 Army Air and Missile Defense Threat Assessment concluded that ~~PEO MS: (b) (3)~~

~~(FOUO)~~ **Impact of Current Fiscally Constrained Environment.** According to Army G-8 representatives, the capability portfolio reviews also acknowledged that the serious long-term fiscal challenges the Federal Government was facing would increase competition over the next decade for Federal discretionary funds and concluded that DoD needed to make difficult tradeoffs where appropriate. Consequently, the Army proposed reducing the number of JLENS Orbits from 14 to 5, ~~PEO MS: (b) (3)~~

~~(FOUO)~~ The Army G-8 representatives further stated the recommended Orbit reduction preserved the capability to prevail in today's wars, while freeing up funds for investment in other capabilities. The 2011 review recommended reducing the number of Orbits, terminating program development in FY 2012, and deleting all JLENS program funding from FY 2013 forward. However, a Secretary of Defense Issue Team disagreed with this recommendation and stated that the Army should restore funding levels to the President's 2012 Budget.

### ~~(FOUO)~~ **Schedule-Driven Strategy Adopted and Procurement Quantity Not Updated to Avoid Placing Program at Risk**

~~(FOUO)~~ The Army was executing a schedule-driven strategy and did not update the JLENS Orbit requirement to avoid increased scrutiny, which could have resulted in loss

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~~(FOUO)~~ ~~PEO MS: (b) (3)~~



(~~FOUO~~) of program funding and even program termination. In May 2009, the JLENS program incurred an APB cost and schedule breach resulting from an Army decision to synchronize the JLENS program with the Army Integrated Air and Missile Defense program. This decision extended the JLENS EMD phase 12 months and increased program cost by \$383 million to allow for the new synchronization requirement. A Joint Staff Tripwire review<sup>9</sup> in FY 2010 directed the Product Office to return to the JROC if the program costs exceeded the original APB baseline by 25 percent.

(~~FOUO~~) In FY 2011, the JLENS EMD phase was delayed another 6 months because of engineering challenges related to integrating the DoD OIG: (b) (4) and the destruction of a prototype. The destruction of the prototype resulted in delays in developmental testing, which had an adverse effect on the following milestones: limited user test, LRIP decision point, first unit equipped, initial operational test, and LRIP contract award. As a result, the program received an additional \$261 million for the 6-month delay, obsolescence mitigation, spares in support of total package fielding requirements, and integrated fire control testing with the Patriot before the limited user test. The Army provided the program another \$496 million to procure an Orbit in FY 2016. The Army funding decision to stretch the JLENS EMD program caused the JLENS Program Acquisition Unit Cost to exceed the current approved APB by \$ DoD OIG: (b) (4) or DoD OIG: (b) (4) percent and caused the program to incur a significant Nunn-McCurdy unit cost breach.

(~~FOUO~~) On February 14, 2012, the Program Executive Office, Missiles and Space, notified the Under Secretary of Defense for Acquisition, Technology, and Logistics that the JLENS Program would incur a critical Nunn-McCurdy unit cost breach with the submission of the President's Budget for FY 2013 because of the DoD OIG: (b) (4) -percent reduction in the planned procurement quantities. The elimination of all procurement funding caused the Program Acquisition Unit Cost to increase by DoD OIG: (b) (4) percent. This action also eliminated the JLENS Program schedule.

## ~~(FOUO)~~ Timing of Test Events and Procuring More Orbits Than Needed Will Increase Program Risk and Affordability Concerns

(~~FOUO~~) The timing of test events, as detailed in the November 2011 draft Test and Evaluation Master Plan (TEMP), would not have provided the MDA sufficient test information to make an informed LRIP decision in September 2012. In addition, the JLENS Product Office could, without having the JLENS Orbit requirement revalidated, procure nine more JLENS Orbits, at an estimated cost of \$ DoD OIG: (b) (4) than needed to support the JLENS mission.

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<sup>9</sup> The JROC tripwire review process is designed to assess and evaluate Major Defense Acquisition Programs with the goal of preventing significant Nunn-McCurdy breaches from occurring and from becoming critical.

~~(FOUO)~~ **Planned Testing May Not Provide Sufficient Information for the LRIP Decision**

~~(FOUO)~~ DoD uses developmental testing to verify that design risks are minimized, the safety of the system is certified, achievement of system technical performance is

~~(FOUO)~~ *The JLENS test program... would not have provided the MDA with sufficient test information to make an informed LRIP decision in September 2012.*

substantiated, and readiness for dedicated operational testing is certified. However, the JLENS test program as it was planned, would not have provided the MDA with sufficient test information to make an informed LRIP decision in September 2012. The JLENS Product Manager obtained approval to defer the testing that would fully demonstrate the system's ability to perform

PEO MS: (b) (3)

until after the JLENS entered the Production and Deployment Phase of the acquisition process.

~~(FOUO)~~ The Product Manager also compressed the test schedule and did not plan to conduct developmental tests that the MDA would normally require before the LRIP decision. Although the first developmental test conducted was very promising and showed the JLENS program was on track by demonstrating technical performance associated with the key performance parameters, the test was performed with just the fire control radar, not the entire Orbit. Further, the scenarios evaluated during the test only covered two-thirds of the JLENS primary target set.

~~(FOUO)~~ In addition, the last two developmental test events planned and the environmental testing of the system were delayed until after the LRIP decision. The second developmental test was to validate system performance against DoD OIG: (b) (4). The test would also examine functions associated with the JLENS DoD OIG: (b) (4) that were performed manually during the first developmental test and include an assessment of DoD OIG: (b) (4) capabilities that were added after the first developmental test. The third developmental test was to reevaluate DoD OIG: (b) (4) problems identified during earlier test events and predict JLENS readiness for the system's DoD OIG: (b) (4).

~~(FOUO)~~ The November 2011 draft TEMP also states that the full range of live threat scenarios would not be fully replicated during the planned test events. Instead, the Product Manager decided to use modeling and simulation and a stimulator to supplement the testing. The models and simulations, however, lacked the robustness needed to demonstrate the full system capability. Additionally, the stimulator which the TEMP states would provide the key data needed to evaluate JLENS performance where testing was cost-prohibitive still needed to be verified, validated, and accredited.

~~(FOUO)~~ In addition, the limited user test planned to provide data to support an independent assessment of the capabilities and limitations of the JLENS Orbit effectiveness, suitability, and survivability in performing its mission would only collect data to support an operational assessment of the system's ability to perform its primary

(FOUO) missions. Further, not all Joint Theater Air and Missile Defense battle management centers and nodes would be available during the test period. Also, the duration of the sustained test operations would restrict the demonstration of the system's reliability, availability, and maintainability requirements. Finally, soldiers would not operate the system or conduct radar maintenance because of schedule and training conflicts.

(FOUO) The JLENS Product Manager should defer the LRIP decision until satisfactory development and operational test results are available to provide the MDA with the test information needed to determine the readiness of JLENS for LRIP.

### **(FOUO) JLENS Program May Procure More Orbits Than Required**

(FOUO) Based on the recent studies, the JLENS procurement objective of 14 Orbits exceeds the number of Orbits needed to support the JLENS mission. If the Army does not update the ORD requirement, the JLENS Product Office could procure nine JLENS Orbits at an estimated cost of \$<sup>DoD OIG: (b) (4)</sup> that are not needed to support the JLENS mission. Table 6 shows the estimated procurement savings over the life of the program, at the current average procurement unit cost, that the Army could achieve from reducing the number of JLENS Orbits to five, as recommended in the 2010 Army Air and Missile Defense Capability Portfolio Review.

**(FOUO) Table 6. Estimated Procurement Savings From Reduced Quantity**

(FOUO)

<b>Procurement</b>	<b>Quantity</b>	<b>APUC<sup>1</sup> (millions)</b>	<b>Procurement Cost (millions)</b>
Original	14	\$325.9	<sup>DoD OIG: (b) (4)</sup>
Reduced <sup>2</sup>	5	\$325.9	
<b>Reduction</b>	<b>9</b>	-	

1 Average Procurement Unit Cost (APUC) estimate from Defense Acquisition Executive Summary (Sept 2011).

2 Does not include two SDD Orbits acquired under the EMD contract.

### **(FOUO) Deputy Secretary of Defense Signs Resource Management Decision Memorandum**

(FOUO) In a resource management decision memorandum, February 2, 2012, the Deputy Secretary of Defense directed JIAMDOD, in coordination with the Under Secretary of Defense for Acquisition, Technology, and Logistics and the Director of Cost Assessment and Program Evaluation, to conduct a study on the need for JLENS in integrated air and missile defense. The Deputy Secretary requested a presentation of the study findings no later than June 29, 2012. The Deputy Secretary also directed that the JLENS program

~~(FOUO)~~ receive an additional \$220 million to complete the EMD program to complete testing and to maintain a viable option to begin procurement in FY 2014.

~~(FOUO)~~ *If the Joint Staff determines that the JLENS system is not the most cost-effective solution to address the cruise missile threat, the Army should terminate the program and reprogram the unexpended RDT&E, Procurement, and Military Construction funding. However, should JIAMDO confirm that JLENS is still required, then the Army needs to adjust the JLENS Orbit requirement as presented in the findings and fund the program accordingly.*

## ~~(FOUO)~~ Under Secretary of Defense for Acquisition, Technology and Logistics Rescinds Milestone B Approval and Determines Continuation of JLENS Program is Essential

~~(FOUO)~~ On May 24, 2012, the acting Under Secretary of Defense for Acquisition, Technology and Logistics issued two memorandums that affected the JLENS EMD program. The first rescinded the program's Milestone B approval, while the second directed the Army to restructure the JLENS program. The acting Under Secretary determined following the Nunn-McCurdy review that the continuation of the JLENS program was essential to the national security <sup>PEO MS: (b) (3)</sup>

~~(FOUO)~~ The acting Under Secretary of Defense for Acquisition, Technology and Logistics also determined that continuing test and evaluation of the two JLENS EMD Orbits was necessary to fully understand the limits of system performance. While the acting Under Secretary stated the primary root cause of the unit cost breach was due to factors exogenous to the program; that is, the decision to not procure production units and the Secretary of Defense's direction for JLENS to participate in a Combatant Command exercise; he acknowledged the program has had issues in execution related to technical problems associated with the design and integration of the prime items. The acting Under Secretary of Defense for Acquisition, Technology and Logistics stated that the restructured program would facilitate maturation of full system capabilities and enable the Department to determine the optimal fielding options or whether additional science and technology development efforts were needed. See Appendix E for the memorandums.

## ~~(FOUO)~~ Conclusion

~~(FOUO)~~ The JLENS Product Manager was proceeding with a high-risk acquisition strategy that included high-risk technical challenges that would not have been resolved before the scheduled LRIP decision in September 2012. Resolution of those high-risk areas would have required the Product Manager to add time and RDT&E funding to the budget to complete the JLENS development before proceeding to LRIP. Without demonstrated test results to confirm resolution of the technical challenges, the MDA would not have assurance that key JLENS capabilities could be delivered affordably with the LRIP units.

(~~FOUO~~) In light of the acting Under Secretary of Defense for Acquisition, Technology and Logistics determination following the Nunn-McCurdy review that the continuation of

(~~FOUO~~) *The Army could save up to \$<sup>DoD OIG: (b) (4)</sup> over the Future Years Defense Program and avoid incurring an additional \$<sup>DoD OIG: (b) (4)</sup> over the life of the program if JLENS is terminated.*

the JLENS program was essential to the national security, the Army should not reschedule an LRIP decision until adequate test data are available to verify that design risks have been minimized, the safety of the system is certified, achievement of system technical performance is substantiated, and JLENS is ready for realistic operational testing. The

Army could save up to \$<sup>DoD OIG: (b) (4)</sup> over the Future Years Defense Program (FYDP) and avoid incurring an additional \$<sup>DoD OIG: (b) (4)</sup> over the life of the program depending on the extent of the actions taken in response to the report recommendations. See Appendix D for details on how the potential monetary benefits and cost avoidance were calculated.

## ~~(FOUO)~~ **Cruise Missile Defense Systems Project Office Management Comments on the Finding and Our Response**

The CMDS Project Office provided comments on the draft report and the recommendations. We addressed the significant issues raised with the finding in this section and made other minor changes to the report where appropriate.

### ~~(FOUO)~~ **CMDS Comments on the JLENS Readiness for the LRIP Decision**

(~~FOUO~~) The CMDS Project Office stated after the elimination of procurement funding that it agreed with the overall determination that JLENS was not ready for the original September 2012 LRIP decision. However, the CMDS Project Manager stated the elimination of procurement funding was not based on the readiness of the program to enter production, but the availability of funds.

### **Our Response**

(~~FOUO~~) Regardless of why DoD removed the procurement funding, the JLENS program would not have been ready for an LRIP decision in September 2012. As we explained in the report and was documented in the Nunn-McCurdy Certification Acquisition Decision Memorandum that the acting Under Secretary of Defense for Acquisition, Technology and Logistics issued, the program has had trouble in execution related to technical problems associated with the design and integration of the JLENS prime items. In the Acquisition Decision Memorandum, the acting Under Secretary of Defense for Acquisition, Technology and Logistics stated that systems integration was only 67 percent complete and continued test and evaluation of the two EMD orbits was necessary to fully understand the limits of system performance. The acting Under Secretary of Defense for Acquisition, Technology and Logistics also stated the program

~~(FOUO)~~ restructuring would facilitate the maturation of full system capabilities, and enable the Department to determine the optimal fielding options or whether additional science and technology development efforts were needed. Clearly, the program's readiness was a major factor in the acting Under Secretary of Defense for Acquisition, Technology and Logistics decision to rescind the program's Milestone B approval and the determination that additional development, continued test and evaluation, and more test information was needed.

### ~~(FOUO)~~ **CMDS Comments on the JLENS Acquisition Strategy**

~~(FOUO)~~ The CMDS Project Office disagreed that the JLENS Product Manager established a high-risk, schedule-driven strategy, rather than an event-driven strategy that minimized program risks. The CMDS Project Manager stated that although schedule was an important aspect of program strategy, since the final determination of when key events occur is based on readiness, the strategy adopted was not schedule driven.

### **Our Response**

~~(FOUO)~~ We stand by our conclusion that the JLENS Product Manager was executing a high-risk, schedule-driven acquisition strategy. As we documented in the report, rather than delaying the September 2012 LRIP decision to provide more time to address the technical challenges that the program was encountering and complete software integration, the Product Manager instead opted to defer or decrease the scope of test events. These actions, coupled with the removal of the requirement to test JLENS PEO MS: (b) [REDACTED] as a part of EMD added program risk by significantly reducing the information available to the MDA about the JLENS performance in making the LRIP decision.

### ~~(FOUO)~~ **Comments on the Internal Controls Related to the Orbit Requirement**

~~(FOUO)~~ The CMDS Project Office disagreed that the Army had internal control weaknesses in defining requirements and did not reduced the Orbit requirement to the quantity needed to support the updated JLENS mission because of disagreement within the requirements community. In addition, the CMDS Project Manager disagreed that the JLENS Product Office was at risk of procuring nine more Orbits, at an estimated cost of \$ DoD OIG: (b) (4) than needed to support the JLENS mission. The CMDS Project Manager also stated the draft report did not address the reduction of JLENS Orbits reflected in the FY 2012 President's Budget or capture the fact that it is at the LRIP decision point where specific quantities are determined based on any evolving needs identified post-Milestone B (during the EMD Phase).

### **Our Response**

~~(FOUO)~~ There was no reduction to the Orbit requirement despite numerous reviews indicating fewer were needed. While we agree that procurement funding was removed from the FY 2012 President's Budget, it was not due to a reduction in the Orbit requirement. The Orbit requirement remained unchanged at 16 orbits. Instead, the procurement funding was removed because the program schedule had to be stretched to

~~(FOUO)~~ provide additional time to address engineering challenges associated with prime item integration and to recover from the destruction of a prototype asset. Consequently, the procurement funding was removed because the program did not need it in FY 2012. In addition, although the exact quantity of a weapon system needed may be refined before entering production based on what is learned about a system's performance, the required quantity is established at program inception and is used to assess the program's affordability. When the anticipated mission sets that a particular weapon system is being developed to perform changes as was the case with JLENS, it is appropriate that the number of required systems would be reevaluated and revalidated.

### ~~(FOUO)~~ ***CMDS Comments on Internal Controls related to Test Events***

~~(FOUO)~~ The CMDS Project Office disagreed that there were internal control weaknesses in test planning or that any key developmental tests were moved beyond the planned LRIP decision. The CMDS project manager stated while certain tests, such as the Logistics and Maintenance Demonstration, March Order Emplacement, Climatic testing, and others were always planned to be conducted after Milestone C, the developmental tests that were delayed beyond Milestone C were tests that were not previously approved by the MDA at Milestone B as being needed for LRIP.

### ***Our Response***

~~(FOUO)~~ The Integrated Test Program Schedule contained in the approved JLENS Milestone B TEMP, showed the last two developmental tests were scheduled to commence before the LRIP decision. Rather than delaying the September 2012 LRIP decision to provide more time to address the technical challenges that the program was encountering and complete software integration, the Product Manager instead opted to defer test events. These actions, coupled with the removal of the requirement to test JLENS <sup>PEOMS: (b) (3)</sup> as a part of EMD added program risk by significantly reducing the information available to the MDA in making the LRIP decision about the JLENS performance. We believe this contributed to the acting Under Secretary of Defense for Acquisition, Technology and Logistics determination that additional development, continued test and evaluation, and more test information was needed before a production was made.

### ~~(FOUO)~~ ***Comments on JLENS Key Event Schedule***

~~(FOUO)~~ The CMDS Project Office disagreed that the schedule shown in Figure 3 on page 10 represented the JLENS Product Manager's estimate, but rather a proposed Raytheon schedule which the Army rejected.

### ***Our Response***

~~(FOUO)~~ We developed the schedule from the integrated test program schedule approved at Milestone B and a timeline obtained from the Product Office which portrayed the test schedule as of November 2011. We confirmed the timing of the developmental test events shown on the schedule with product office personnel.

## Recommendations, Management Comments, and Our Response

~~(FOUO)~~ We recommend that the:

~~(FOUO)~~ 1. Director of Defense Procurement and Acquisition Policy issue guidance reemphasizing the requirement for project managers to maintain requirement documents that show the rationale for how the procurement quantities were established for all weapon systems.

### ***Director of Defense Procurement and Acquisition Policy Response***

The Director, Defense Procurement and Acquisition Policy agreed with the recommendation and stated that the Under Secretary of Defense (Acquisition, Technology and Logistics) is currently staffing Acquisition Information Repository implementation guidance. The Director stated the Acquisition Information Repository is a searchable repository that will provide the Defense acquisition community with access to a wide range of authoritative acquisition information. The Director further stated the repository would store approved milestone documents for Acquisition Category 1D, Acquisition Category 1AM, and special interest programs and would provide an institutionalized mechanism responsive to the report recommendation. As of August 2012 the implementation guidance has not been issued.

### ***Our Response***

Comments from the Director, Defense Procurement and Acquisition Policy comments were responsive and meet the intent of the recommendation. No further comments are required.

~~(FOUO)~~ 2. U.S. Army, Deputy Chief of Staff, G-3/5/7, reassess and determine the appropriate number of Orbits required to perform the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System mission and fund the program accordingly.

### ***U.S. Army, Deputy Chief of Staff, G-3/5/7 Comments***

The Assistant Deputy Chief of Staff, G-3/5/7 stated the Deputy Chief of Staff, G-3/5/7 recommended the U.S. Army procure no more JLENS orbits. The Assistant Deputy Chief of Staff, G-3/5/7 further stated in May 2012 the Defense Acquisition Executive re-certified the JLENS program at two (2) Engineering, Manufacturing and Development (EMD) orbits as part of the Acquisition Decision Memorandum in response to a Nunn-McCurdy breach and that the Army is currently assessing the use of the JLENS EMD orbits for Homeland Defense.



### ***Our Response***

Comments from the U.S. Army, Deputy Chief of Staff, G-3/5/7 comments were responsive and meet the intent of the recommendation. No further comments are required.

~~(FOUO)~~ 3. **JLENS Product Manager delay the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System low-rate initial production decision until complete and satisfactory developmental test reports and an operational assessment are available to allow the Milestone Decision Authority to make an informed low-rate initial production decision.**

### ***CMDS Project Office Comments***

~~(FOUO)~~ The CMDS Project Manager agreed with the recommendation and stated he would comply with the Under Secretary of Defense Acquisition, Technology and Logistics, “Nunn-McCurdy Certification Acquisition Decision Memorandum for the Restructured Joint Land attack Cruise Missile Elevated Netted Sensor Systems Program,” issued on May 24, 2012.

### ***Our Response***

Comments from the CMDS Project Office were responsive, and no further comments are required.

~~(FOUO)~~ 4. **Assistant Secretary of the Army (Financial Management and Comptroller) use the results of the Joint Integrated Air and Missile Defense Organization study to determine whether to:**

~~(FOUO)~~ a. **Terminate the program, and**

~~(FOUO)~~ b. **Reprogram the \$<sup>DoD OIG: (b) (4)</sup> in procurement funding that is allocated to the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System across the FY 2012 to FY 2016 Future Years Defense Program and any unexpended Research, Development, Test, and Evaluation and Military Construction funding.**

### ***Assistant Secretary of the Army (Financial Management and Comptroller) Comments***

Subsequent to the issuing of the draft of this report, we were advised by the Director, Army Internal Review Program, Office of the Assistant Secretary of the Army (Financial Management & Comptroller), that this recommendation should have been directed to the Under Secretary of Defense for Acquisition, Technology and Logistics. The Director also stated that actions taken as a part of the Program Objective Memorandum 2013-2017

decision process and the acquisition decision memorandum issued in response to the program experiencing a critical Nunn-McCurdy Unit Cost Breach address the intent of the recommendation.

***Our Response***

The action taken by the Department of the Army and Office of the Secretary of Defense as a result of the Program Objective Memorandum 2013-2017 decision process meet the intent of the recommendation. Specifically, the JLENS program quantity was reduced from 16 to 2 orbits, causing the program to incur a critical Nunn-McCurdy Unit Cost Report Breach with the submission of the President's Budget for Fiscal Year 2013 due to the elimination of funding related to the 100 percent reduction in planned procurement quantities. In addition, following the comprehensive review conducted as result of the breach, the Under Secretary of Defense for Acquisition, Technology and Logistics determined that the continuation of the program was essential to national security

PEO MS: (b)  
(5)

[REDACTED]

## Appendix A. Scope and Methodology

We conducted this performance audit from March 2011 through May 2012 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.

We interviewed key personnel and performed fieldwork at the following organizations:

- JLENS Product Office (Huntsville, Alabama);
- Raytheon (Tewksbury, Massachusetts);
- Director, Operational Test and Evaluation (Arlington, Virginia);
- Capabilities Development Integration Directorate–Requirements Determination Division (Fort Sill, Oklahoma);
- Army Training and Doctrine Command Capability Manager–Air Defense Artillery-Brigade (Fort Sill, Oklahoma);
- Army G-8 (Arlington, Virginia);
- Army G-3/5/7 (Arlington, Virginia); and
- Joint Integrated Air and Missile Defense Organization (Arlington, Virginia).

We collected, reviewed, and analyzed documents dated from July 1999 through February 2012. The documentation related to the testing that we reviewed included the Program Initiation TEMP, the draft LRIP decision TEMP, and the Development Test 1 Test Plan. Documents reviewed related to determining the procurement quantity included in the AoA, ORD, Elevated Sensor Sufficiency Study, and the actions recommended by the Army Air and Missile Defense Capability Portfolio Reviews.

We reviewed program planning and reporting documentation against the policies and guidance in the following DoD and Army issuances to determine whether the Army was effectively establishing requirements and planning tests to support the JLENS at the LRIP procurement decision review:

- Chairman of the Joint Chiefs of Staff Instruction 3170.01H, “Joint Capabilities Integration and Development System,” January 10, 2012;
- Chairman of the Joint Chiefs of Staff Manual for the Operation of the Joint Capabilities Integration and Development System, January 31, 2011, and January 19, 2012;
- DoD Instruction 5000.02, “Operation of the Defense Acquisition System,” December 8, 2008; and
- Defense Acquisition Guidebook.

## **Use of Computer-Processed Data**

We did not rely on computer-processed data to perform this audit.

## **Use of Technical Assistance**

The DoD IG Technical Assessment Division assisted with the audit. The Technical Assessment Division engineers completed a technical assessment of the adequacy of the JLENS program to fulfill the requirements of the applicable DoD acquisition process, test and evaluation, systems engineering policy and guidance, and general engineering principles and best practices in preparation for the LRIP decision planned for September 2012.

## **Prior Coverage on JLENS**

During the last 10 years, the Government Accountability Office (GAO), DoD IG, and Army Audit Agency have issued five reports related to the JLENS program. Unrestricted GAO reports can be accessed over the Internet at <http://www.gao.gov>. Unrestricted DoD IG reports can be accessed at <http://www.dodig.mil/audit/reports>. Unrestricted Army reports can be accessed from .mil and gao.gov domains over the Internet at <https://www.aaa.army.mil/>.

### **GAO**

GAO Report No. GAO-11-233SP, “Defense Acquisitions: Assessments of Selected Weapon Programs,” March 29, 2011

GAO Report No. GAO-10-388SP, “Defense Acquisitions: Assessments of Selected Weapon Programs,” March 30, 2010

### **DOD IG**

DOD IG-2011-091, “The Army Needs to Recoup Funds Expended on Property Damaged in an Accident at a Development Subcontractor’s Facility,” May 24, 2012

DOD IG Report No. D-2002-026, “Acquisition of the Vertical Take-off and Landing Tactical Unmanned Aerial Vehicle,” December 14, 2001

### **Army**

Army Report No. A-2009-0005-ALA, “Technology Readiness Assessments: Program Executive Office, Missiles and Space,” October 22, 2008

## **Appendix B. Policy and Guidance on Reporting Approved Acquisition Baseline Deviations, Test and Evaluation Activities, and Funding of Acquisition Programs**

The following provides DoD and Army guidance relating to reporting deviations from the approved APB, test and evaluation, and the funding of acquisition programs.

### **Reporting Deviations From the Acquisition Program Baseline**

The APB serves to document what the program manager will deliver in terms of cost, schedule, and performance. Program goals consist of an objective value and a threshold value for each key performance parameter/key system attribute parameter. Cost, schedule, and performance are intrinsically linked, and the threshold and objective values of all program goals should be developed with these relationships in mind. The program manager is responsible for managing the trade space between program goals within the bounds of cost, schedule, and performance.

Objective values represent the desired operational goal associated with a performance attribute beyond which any gain in utility does not warrant additional expenditure. Generally, the objective value is an operationally significant increment above the threshold. An objective value may be the same as the threshold when an operationally significant increment above the threshold is not useful.

Thresholds represent the minimum acceptable operational value below which the utility of the system becomes questionable. For performance, a threshold represents either a minimum or maximum acceptable value, while for schedule and cost parameters, thresholds would normally represent maximum allowable values. The failure to attain program thresholds may degrade system performance, delay the program (possibly impacting related programs or systems), or make the program too costly. The failure to attain program thresholds, therefore, places the overall affordability of the program or the capability provided by the system into question.

In accordance with 10 U.S.C § 2432, “Selected Acquisition Reports,” the Secretary of Defense is required to submit a status report at the end of each fiscal-year quarter to Congress on the Department’s current Major Defense Acquisition Programs. The requirement is waived for the second, third, and fourth quarter of the fiscal year for programs whose status has changed by less than a

- 15-percent increase in program acquisition unit cost and current procurement unit cost for the program and

- 6-month delay in any program schedule milestone shown in the first-quarter Selected Acquisition Report.

When the program manager has reason to believe that the current estimate for the program indicates that a performance, schedule, or cost threshold value will not be achieved, he or she is required to notify the MDA of the deviation. The program manager is also required to submit a Program Deviation Report to the MDA providing the reasons for the program deviation and the actions needed to bring the program back within the baseline parameters.

In addition, 10 U.S.C. § 2433, “Unit Cost Reports” (the Nunn-McCurdy Act), requires DoD to report to Congress whenever a Major Defense Acquisition Program experiences cost overruns that exceed certain thresholds. A program that experiences cost growth exceeding any of the established thresholds is said to have a Nunn-McCurdy breach. There are two categories of breaches: significant breaches and critical breaches. As shown in Table B-1, a “significant” breach occurs when the Program Acquisition Unit Cost (PAUC) or the APUC increases by 15 percent or more over the current baseline estimate or 30 percent or more over the original baseline estimate. A “critical” breach occurs when the PAUC or APUC increases 25 percent or more over the current baseline estimate or 50 percent or more over the original baseline estimate.

**Table B-1. PAUC and APUC Threshold Differences Between a Significant Nunn-McCurdy Breach and a Critical Nunn-McCurdy Breach**

<b>Baseline Estimate</b>	<b>Significant Breach</b>	<b>Critical Breach</b>
Current	15 percent or more	25 percent or more
Original	30 percent or more	50 percent or more

Program managers are required to submit quarterly unit cost reports to the Service’s acquisition executive within 30 days of the end of the quarter. If a program manager has reasonable cause to believe that a program has a breach, he or she must immediately submit a unit cost report. When the service acquisition executive receives a unit cost report, he or she must determine whether a Nunn-McCurdy breach has occurred. If there is no breach, no notification to Congress is required. If there is, in fact, a Nunn-McCurdy breach, the Service is required to notify Congress, in writing, of the breach. The notification to Congress must include 17 categories of information, including:

- a statement of the reasons for the cost increase,
- the completion status of the program,
- changes in the projected cost of the program,
- the identities of the military and civilian officers responsible for program management and cost control of the program,
- any changes in performance or schedule that contributed to cost growth,
- actions taken and proposed to be taken to control future cost growth of the program, and
- prior cost-estimating information.

In addition to the notification, DoD must submit to Congress a selected acquisition report for the fiscal quarter in which the breach occurred or in the quarter in which it was determined that the breach occurred. For a significant breach, no further action is required.

However, if the program experiences a critical breach, 10 U.S.C. § 2433a, “Critical Cost Growth in Major Defense Acquisition Programs,” requires additional steps. The Secretary of Defense must conduct a root-cause analysis to determine what factors caused the cost growth that led to a critical breach, and in consultation with the Director of Cost Assessment and Program Evaluation, assess:

- the projected cost of completing the program if no changes are made to the current requirements,
- the projected cost of completing the program if requirements are modified,
- the estimated cost of reasonable alternatives to the program, and
- the extent to which funding from other programs will need to be cut to cover the cost growth of the program.

After the reassessment, the program will be terminated unless the Secretary of Defense provides written certification to Congress within 60 days stating that:

- the program is essential to national security,
- there are no viable cost-effective alternatives to the program that meet the joint military requirements,
- the Director of Cost Assessment and Program Evaluation has determined the new cost to be reasonable,
- the program is a higher priority than programs whose funding must be reduced to cover the increased cost of the program, and
- the management structure is sufficient to control additional cost growth.

The written certification must be accompanied by a copy of the root-cause analysis report. In addition, if the program is not terminated, the program must:

- be restructured in a manner that addresses the root cause of cost growth,
- have its prior milestone approval rescinded, and
- receive a new milestone approval before taking any contract action including signing new contracts, exercising options, or otherwise extending the scope of an existing contract, without approval from the MDA.

DoD must also notify Congress of all funding changes made to cover the cost growth of the program in question, including reductions made in funding for other programs, and hold regular reviews of the program.

## 10 U.S.C. § 2399, Operational Test and Evaluation of Defense Acquisition Programs

### (a) Condition for Proceeding Beyond Low-Rate Initial Production.

(1) The Secretary of Defense shall provide that a major defense acquisition program may not proceed beyond low-rate initial production until initial operational test and evaluation of the program is completed.

(2) In this subsection-

(A) The term “major defense acquisition program” means a major defense acquisition program that involves the acquisition of a weapons system that is a major system within the meaning of that term in section 2302(5) of this title.

(b) Operational Test and Evaluation. - (1) Operational testing of a major defense acquisition program may not be conducted until the Director of Operational Test and Evaluation of the Department of Defense approves (in writing) the adequacy of the plans (including the projected level of funding) for operational test and evaluation to be conducted in connection with that program.

(2) The Director shall analyze the results of the operational test and evaluation conducted for each major defense acquisition program. At the conclusion of such testing, the Director shall prepare a report stating

(A) the opinion of the Director as to-

(i) whether the test and evaluation performed were adequate; and

(ii) whether the results of such test and evaluation confirm that the items or components actually tested are effective and suitable for combat.

## Test and Evaluation

DoD Instruction 5000.02, “Operation of the Defense Acquisition System,” December 8, 2008, provides procedures for test and evaluation activities during the systems acquisition processes. The Instruction states that the program manager is to design developmental test and evaluation objectives appropriate for each phase and milestone of an acquisition program. Testing is to be event-driven and monitored by the use of success criteria within each phase, operational test and evaluation entrance criteria, and other metrics designed to measure progress and support the decision process.

Army Regulation 73-1, “Test and Evaluation Policy,” August 1, 2006, prescribes implementing policies for Army test and evaluation activities. The regulation requires that test and evaluation be tailored to accommodate the unique characteristics and schedule of each acquisition program. The regulation also requires that appropriate developmental testing be conducted to assess achievement of critical technical parameters, identify technological and design risks, and determine readiness to proceed to initial operational test.

## Program Funding Policy

Full funding and program stability is especially important in joint programs. Underfunding or program instability on the part of one DoD Component can lead to



unintended cost growth or instability for another DoD Component in a joint program. DoD Instruction 5000.02 imposes strict approval requirements that must be met before DoD Components are permitted to terminate or make significant reductions to their share of costs for approved joint programs.

For Major Defense Acquisition Programs, the MDA normally assesses full funding at all major decision points. As part of this assessment, the MDA reviews the actual funding in the most recent FYDP in comparison to the (time-phased) DoD Component cost estimate. In addition, the MDA considers funding recommendations from the Director, Cost Assessment and Program Evaluation. If the MDA concludes that the current funding does not support the acquisition program, then the acquisition decision memorandum may direct a funding adjustment, program restructure, or both, in the next FYDP update.

## (FOUO) Appendix C. Chronology of Key Events and Activities

(FOUO) **January 1996.** - Joint Aerostat Project Office Established. The Under Secretary of Defense for Acquisition and Technology established the Joint Aerostat Project Management Office and the JLENS for Land Attack Cruise Missile Defense.

(FOUO) **January 1998.** - Contract Awarded. The JLENS contract was competitively awarded to Raytheon as DoD OIG: (b) (4).

(FOUO) **April 1999.** - Acquisition Category II Designation. The JLENS Product Office made a request to be designated as an Acquisition Category II program. The Army Acquisition Executive approved the request. The JLENS program was designated an Acquisition Category II program on April 16, 1999.

(FOUO) **September 30, 2001.** - Quadrennial Defense Review. A central objective of the QDR was to shift the basis of defense planning from a “threat-based” model to a “capabilities-based” model for the future. This capabilities-based model focuses more on how an adversary might fight rather than specifically who the adversary might be or where a war might occur.

(FOUO) **January 2003.** - Program Restructured. The Army Acquisition Executive restructured the JLENS program. The program restructure added new effort to the existing Raytheon contract for DoD OIG: (b) (4) as well as for DoD OIG: (b) (4).

(FOUO) **February 2003.** - Final AoA Approved. The AoA general objectives were to illuminate the relative cost and operational effectiveness of the alternatives being considered, assist decisionmakers in determining whether any of the proposed alternatives offered a sufficient increase in operational capability to justify its cost, identify sensitivity of each alternative to possible changes in key assumptions or variables, and explore the military use of JLENS to conduct other independent missions.

(FOUO) **February 2003.** - DoD OIG: (b) (4) Contract Awarded. The DoD OIG: (b) (4) JLENS was developed from DoD OIG: (b) (4). This sensor system consists of DoD OIG: (b) (4).

(FOUO) **January 2004.** - ORD Approved. The JROC approved the ORD. In developing the requirements, the Combat developer used an incremental approach, with three blocks of system development contained in the ORD. In response, the Joint Product Office developed three separate acquisition increments to correspond with the three blocks of the ORD. The JROC-approved ORD includes key performance parameters that address DoD OIG: (b) (4).

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~~(FOUO)~~ **December 2004.** - Program Initiation TEMP Approved. The Program Initiation TEMP was approved in December 2004.

~~(FOUO)~~ **June 2005.** - Program Initiation. The program initiation review centered on program acceleration to meet emerging cruise missile threats as directed by the Vice Chief of Staff of the Army in April 2003.

~~(FOUO)~~ **October 2005.** - EMD Contract Award. The EMD contract was awarded in October 2005.

~~(FOUO)~~ **December 2009.** - Acquisition Program Baseline Breach. The Army incurred a cost and schedule deviation to the approved JLENS APB as a result of the Army strategy to synchronize the JLENS System Development and Demonstration program with the Army Integrated Air and Missile Defense Program.

~~(FOUO)~~ **February 2010.** - Quadrennial Defense Review. This QDR represented an important step in fully institutionalizing the ongoing reform and reshaping of America's military-shifts that rebalance the urgent demands of today and lethal threats of the future.

~~(FOUO)~~ **September 2010.** - Aerostat Accident. On September 30, 2010, high winds caused an Airship Management Services airship to break loose from its mooring and collide with JLENS Platform Number 3 as it floated above the Tethered Communications Limited Partnership's facility in Elizabeth City, North Carolina. As a result, the JLENS platform was damaged. The accident contributed to the JLENS program's significant Nunn-McCurdy breach and caused schedule delays.

~~(FOUO)~~ **September 2010.** - Capability Portfolio Review. The Secretary of the Army initiated the capability portfolio review process as a means to review requirements and investments across portfolios of Army capabilities. The requirement for the JLENS was examined as part of the air and missile defense portfolio review.

~~(FOUO)~~ **October 2010.** - Elevated Sensor Sufficiency Study. The effort was intended to identify existing sufficiency demands for JLENS capabilities and to identify Service or Joint capabilities that could perform the same mission or portions of the mission.

~~(FOUO)~~ **February 2011.** - Significant Nunn-McCurdy Breach. JLENS incurred a significant Nunn-McCurdy APB breach as reported in the December 2010 Selected Acquisition Report. The breach was incurred by the cumulative effect of the following decisions: the FY 2010 President's Budget decision to synchronize the Army Integrated Air and Missile Defense and JLENS programs; the FY 2010 DoD Appropriations Conference mark that reduced FY 2010 resourcing by \$30 million; the loss of Aerostat Platform 3; and FY 2010 prime item engineering challenges.

~~(FOUO)~~ **September 2011.** - Capability Portfolio Review. The Secretary of the Army initiated the capability portfolio review process as a means to review requirements and investments across portfolios of Army capabilities.

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~~(FOUO)~~ **November 2011.** - Developmental Test 1. Developmental Test 1 began in November 2011, after numerous delays caused by engineering and integration challenges. Development Test 1 is designed to test the <sup>DoD OIG: (b) (4)</sup> [REDACTED], while a later Developmental Test 2 will test <sup>DoD OIG: (b) (4)</sup> [REDACTED].

~~(FOUO)~~ **February 2012.** - Resource Management Decision for Fiscal Year 2013 Budget Request. This decision directed the Army to add RDT&E funds totaling \$ <sup>DoD OIG: (b) (4)</sup> [REDACTED] to the JLENS program in order to allow the JLENS to complete testing and maintain the option to begin procurement in FY 2014. In addition, the decision directed a study to be performed to assess the need for the JLENS in integrated air and missile defense.

~~(FOUO)~~ **February 2012.** - Critical Nunn-McCurdy Breach. JLENS incurred a critical Nunn-McCurdy breach as a result of the President's Budget decision to eliminate all JLENS procurement funding in the FY 2013 program budget. The Budget reduced the total procurement quantity from 16 to 2 Orbits, which caused the program to exceed 25 percent of its current approved APB, specifically increasing the initial program acquisition unit cost by 215.72 percent.

~~(FOUO)~~ **May 24, 2012.**- Rescission of Milestone B. The Under Secretary for Acquisition Technology and Logistics rescinds the Milestone B decision granted on August 5, 2005 in accordance with paragraph (c) (1) (B) of section 2433a of title 10, United States Code.

~~(FOUO)~~ **May 24, 2012.**- JLENS Program Restructured. After a Nunn-McCurdy review, the Under Secretary of Defense Acquisition, Technology and Logistics issues an Acquisition Decision Memorandum directing the Army to restructure the JLENS program to consist of two EMD orbits, to complete scheduled EMD test and evaluation that concludes in the fourth quarter FY 2013, but do not plan for entry into the production phase.

## (FOUO) Appendix D. Summary of Potential Monetary Benefits

(FOUO) Potential monetary benefits are calculated using FYDP 2012-2016 data and are shown in Table D-1. The actual benefit achieved could range anywhere from zero to \$2.47 billion, depending on the extent of the actions taken in response to the report recommendations, such as changes in program schedule or procurement quantity.

**(FOUO) Table D-1. Potential FYDP 2012-2016 Monetary Benefits Associated With Actions Taken in Response to Recommendations for the JLENS Program**

(FOUO) Potential Monetary Benefits FY 2012-FY 2016					
Recommendation	Type of Benefit	Amount of Benefit (millions)	Account		
			Fiscal Year	Appropriation	Program Element
2, 3, and 4.	Funds Put to Better Use	DoD OIG: (b) (4)	2012	RDT&E	0102419A
			2012	MILCON	0805796A
			2013	RDT&E	0102419A
			2013	Procurement	0214400A
			2013	MILCON	0805796A
			2014	RDT&E	0102419A
			2014	Procurement	0214400A
			2015	RDT&E	0102419A
			2015	Procurement	0214400A
			2016	RDT&E	0102419A
			2016	Procurement	0214400A
			<b>Total</b>		

(FOUO) Further, up to an additional \$ DoD OIG: (b) (4) in potential cost avoidance associated with the extent of actions taken in response to the report recommendations, which is not incorporated in the FYDP for the years beyond FY 2016, is calculated in Table D-2; any reduction in the procurement quantity will have an effect on Operation and Support amounts baselined in the original APB.

~~(FOUO)~~ Table D-2. Potential Cost Avoidance Associated With Actions Taken in Response to Recommendations for the JLENS Program in the Years Beyond the Current FYDP

<del>(FOUO)</del> Potential Cost Avoidance	
Appropriation	Amount (millions)
RDT&E	<small>DoD OIG: (b) (4)</small>
Procurement	
MILCON	
Operation and Support	
<b>Total</b>	

# (~~FOUO~~) Appendix E. Under Secretary of Defense for Acquisition, Technology and Logistics, USD (AT&L) Decision Memorandums



ACQUISITION,  
TECHNOLOGY  
AND LOGISTICS

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THE UNDER SECRETARY OF DEFENSE  
3010 DEFENSE PENTAGON  
WASHINGTON, DC 20301-3010

MAY 24 2012

MEMORANDUM FOR SECRETARY OF THE ARMY

SUBJECT: Rescission of Milestone B for the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System Program

In accordance with paragraph (c)(1)(B) of section 2433a of title 10, United States Code, I rescind the Milestone B approval for the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS) program, granted on August 5, 2005.

My points of contact are

[REDACTED]

DoD OIG: (b) (6)

[REDACTED]

Frank Kendall  
Acting

cc:  
DAB Principals  
DAB Advisors

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ACQUISITION,  
TECHNOLOGY  
AND LOGISTICS

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THE UNDER SECRETARY OF DEFENSE

3010 DEFENSE PENTAGON  
WASHINGTON, DC 20301-3010

MAY 24 2012

MEMORANDUM FOR SECRETARY OF THE ARMY  
DIRECTOR, PERFORMANCE ASSESSMENTS AND ROOT  
CAUSE ANALYSES

SUBJECT: Nunn-McCurdy Certification Acquisition Decision Memorandum for the  
Restructured Joint Land Attack Cruise Missile Defense Elevated Netted Sensor  
System Program

**Purpose:** The Department of the Army has requested that the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS) program, which has experienced a critical Nunn-McCurdy breach, be certified in accordance with section 2433a of title 10, U.S.C., in lieu of termination. The Project Manager is [REDACTED] the Program Executive Officer is [REDACTED] and the [REDACTED] is performing the duties of the Service Acquisition Executive for the JLENS program.

**Decisions:** I certify the restructured JLENS program, as outlined below, in accordance with section 2433a. The program will not be terminated at this time.

- As required by section 2433a, I rescinded the Milestone B approval for the program, granted in 2005. In addition, the program no longer has an approved Acquisition Program Baseline (APB).
- I direct the Army to restructure the JLENS program to consist of two Engineering and Manufacturing Development (EMD) orbits; to complete scheduled EMD test and evaluation to include the Naval Integrated Fire Control-Counter Air demonstration, Limited User Test, Developmental Test 2, and Developmental Test 3 that concludes in 4<sup>th</sup> Quarter FY 2013; to assist in site selection and planning for the employment of one JLENS orbit in support of an operational Continental United States (CONUS)-based exercise and, when a location is determined and orders are approved by the National Command Authority, to conduct such employment; to continue to develop planned capabilities, assess test results and correct short-comings/deficiencies; and to develop documentation to track and assess program status at the events described in Attachment 1; but to not procure the support equipment and government-furnished equipment required for the second JLENS orbit or plan for entry of the JLENS program into the production phase.
- Based on the comprehensive Nunn-McCurdy review, and pursuant to title 10, U.S.C., section 2433a(c)(1)(C), I have determined that for the JLENS program to be restructured as intended without unnecessarily wasting resources, the Army may execute the contract actions identified in Attachment 3, as would otherwise be permitted by law and regulation. Except to support the actions specified in this Acquisition Decision Memorandum (ADM), or until a new milestone is approved, the Army shall not take any other contract action to enter into a new contract, exercise an option under an existing contract, or otherwise extend the scope of an existing contract for the program without my approval based on a determination that it is

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necessary to ensure that the program can be restructured as intended without wasting resources.

- Section 2435 of title 10, U.S.C., bars obligations for carrying out a Major Defense Acquisition Program without an approved APB unless such obligation is specifically approved by the Under Secretary of Defense for Acquisition, Technology and Logistics. Pursuant to this provision, I hereby approve specific obligations of funds for the JLENS program contract actions identified in Attachment 3, contingent upon the availability of such funds. I also approve the funding obligations for the JLENS program set forth in Attachment 4, contingent upon the availability of such funds. The Army must obtain my specific approval before obligating any additional funds beyond those listed in Attachments 3 and 4 unless or until the JLENS program obtains an approved APB. The Army may also pursue Military Construction (MILCON) funding to support the potential CONUS-based exercise; however, the Army must obtain my approval before obligating any MILCON funds for the program.
- I approve the Director, Cost Assessment and Program Evaluation (D, CAPE), estimate of acquisition costs for the restructured JLENS program (Attachment 2).

**Tasking/Action Items:**

- The Director, Performance Assessments and Root Cause Analyses (D, PARCA), shall conduct semi-annual reviews of the restructured JLENS program as required by section 2433a(c)(1)(E) of title 10, U.S.C.
- The Secretary of the Army shall:
  - Return to the Defense Acquisition Board (DAB) for an interim progress review in the 3<sup>rd</sup> Quarter of FY 2013 to assess the program's status based on the results of developmental test and evaluation.
  - With Office of the Secretary of Defense staff, within 60 days of the date of this ADM, review and report to me the current program office staffing levels to ensure adequate personnel are available to execute the restructured program. The review will include military billets, civilian personnel funding, and fill plans.
  - Staff the JLENS program office to the approved staffing levels by September 30, 2012.
  - Develop and resource a tailored sustainment plan to address completion of test and evaluation activities, storage, and/or demilitarization/disposal of equipment as appropriate 90 days prior to the DAB review in 3<sup>rd</sup> Quarter FY 2013.
  - Fully fund the restructured program by aligning the funding in the Future Years Defense Program with the D, CAPE cost estimate (Attachment 2).

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Discussion:

Following the Nunn-McCurdy review, I determined that the continuation of the program is essential to the national security. <sup>PEO MS: (b) (3)</sup> [REDACTED]

[REDACTED] that the new estimates of the program acquisition unit cost or procurement unit cost have been determined by the D, CAPE to be reasonable; that the program is a higher priority than programs whose funding must be reduced to accommodate the growth in cost of the program; and that the management structure for the program is adequate to manage and control program acquisition unit cost or procurement unit cost.

I have determined that continuing test and evaluation of the two JLENS EMD orbits is necessary to fully understand the limits of system performance, especially with Soldiers operating. The restructured program will facilitate maturation of full system capabilities and enable the Department to determine the optimal fielding options or whether to pursue additional science and technology development efforts. The two JLENS EMD orbits are the only near-term solution that will fill a critical capability gap for an elevated persistent sensor with a large area of coverage, accuracy of air and surface tracking (land and sea), network integration, and combat identification.

The primary root cause of the unit cost breach is due to factors exogenous to the program, that is, the decision to not procure production units and the Secretary of Defense's direction to participate in a Combatant Command exercise. The program has had issues in execution related to technical problems associated with the design and integration of the prime items. D, PARCA will monitor the progress of system integration, currently only 67-percent complete, in its statutorily required performance assessment reviews.

The collective set of tasking/action items listed above addresses the findings of the review team and will help ensure an adequate management structure for the program to manage and control program acquisition and procurement unit costs as the program completes the development phase.

Points of Contact: [REDACTED] Deputy Director, Acquisition Management, Acquisition Resources and Analysis, [REDACTED], and [REDACTED] Director, Strategic Warfare, Strategic and Tactical Systems, [REDACTED] or [REDACTED]

DoD OIG: (b) (6)

[REDACTED]

Frank Kendall  
Acting

Attachments:  
As stated

cc:  
DAB Principals  
DAB Advisors

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## Glossary

**Accreditation.** The official certification that a model or simulation and its associated data are acceptable for use for a specific purpose.

**Acquisition Category.** Acquisition categories are established to facilitate decentralized decisionmaking and execution and compliance with statutorily imposed requirements. The acquisition categories determine the level of review, decision authority, and applicable procedures.

**Acquisition Phase.** An acquisition phase represents all the tasks and activities needed to bring a program to the next major milestone. Phases provide a logical means of progressively translating broadly stated capabilities into well-defined, system-specific requirements and ultimately into operationally effective, suitable, and survivable systems.

**Acquisition Program Baseline.** The APB is an important program management document that reflects the approved program being executed. It is the baseline description of the program and is to include sufficient parameters to describe the cost estimate, schedule, performance, supportability, and other relevant factors. The document is required for Major Defense Acquisition Programs.

**Acquisition Strategy.** An acquisition strategy is a business and technical management approach designed to achieve program objectives within the resource constraints imposed. It is the framework for planning, directing, contracting for, and managing a program. It provides a master schedule for research, development, test, production, fielding, modification, post-production management, and other activities essential for program success. The acquisition strategy is the basis for formulating functional plans and strategies.

**Analysis of Alternatives.** The AoA assesses potential materiel solutions to satisfy the capability need documented in the approved Initial Capabilities Document. It focuses on identification and analysis of alternatives, measures of effectiveness, cost, schedule, concepts of operations, and overall risk, including the sensitivity of each alternative to possible changes in key assumptions or variables. The AoA assesses critical technology elements associated with each proposed materiel solution, including technology maturity, integration risk, manufacturing feasibility, and where necessary, technology maturation and demonstration needs. The AoA is normally conducted during the Materiel Solution Analysis phase of the Defense Acquisition Management System, is a key input to the Capability Development Document, and supports the materiel solution decision at Milestone A.

**Average Procurement Unit Cost.** The APUC is the total procurement cost divided by the number of units to be procured.

**Current Baseline Estimate.** The baseline estimate that is included in the most recently revised APB. If the original baseline estimate has not been revised, the original baseline estimate is also the current baseline estimate.

**Developmental Testing.** Developmental testing is any testing used to assist in the development and maturation of products, product elements, or manufacturing or support processes. It also includes any engineering-type test used to verify status of technical progress, verify that design risks are minimized, substantiate achievement of contract technical performance, and certify readiness for initial operational testing. Development tests generally require instrumentation and measurements and are accomplished by engineers, technicians, or soldier operator-maintainer test personnel in a controlled environment to facilitate failure analysis.

**Engineering and Manufacturing Development.** EMD is the third phase of the acquisition life cycle. This phase consists of two efforts-Integrated System Design and System Capability and Manufacturing Process Demonstration-and begins after Milestone B. It also contains a Post-Critical Design Review Assessment at the conclusion of the Integrated Systems Design effort.

**Exit Criteria.** Exit criteria are program-specific accomplishments that must be satisfactorily demonstrated before a program can progress further in the current acquisition phase or transition to the next acquisition phase.

**Initial Operational Capability.** This is generally attained when some units and/or organizations in the force structure scheduled to receive a system have received it and have the ability to employ and maintain it. The specifics for any particular system Initial Operational Capability are defined in that system's Capability Development Document and CPD.

**Joint Requirements Oversight Council.** The JROC is responsible to the Chairman of the Joint Chiefs of Staff for identifying and assessing the priority of joint military requirements to meet the national military and defense strategies and for considering alternatives to any acquisition program that has been identified to meet military capabilities by evaluating the cost, schedule, and performance criteria of the program and of the identified alternatives. The JROC oversees the Joint Capabilities Integration and Development System and supports the Defense Acquisition Board by validating key performance parameters before each Defense Acquisition Board review of Major Defense Acquisition Programs.

**Key Performance Parameters.** These are the capabilities or characteristics that are considered most essential for successful mission accomplishment.

**Low-Rate Initial Production.** The LRIP phase of the acquisition process is the first effort of the Production and Deployment phase. This effort is intended to result in the 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 testing. At program initiation, the MDA determines the LRIP quantity for Major Defense Acquisition Programs and major systems.

**Milestone.** A milestone is the point at which a recommendation is made and approval sought regarding starting or continuing an acquisition program. Milestone A approves entry into the Technology Development phase, Milestone B approves entry into the Engineering and Manufacturing Development phase, and Milestone C approves entry into the Production and Deployment phase.

**Milestone Decision Authority.** The MDA is the designated individual with overall responsibility for a program. The MDA has the authority to approve entry of an acquisition program in the next phase of the acquisition process and is accountable for cost, schedule, and performance reporting to higher authority, including congressional reporting.

**Modeling and Simulation.** This is the discipline that comprises the development and use of models and simulations. A model is a physical, mathematical, or otherwise logical representation of a system, entity, phenomenon, or process. A simulation is a method for implementing a model over time.

**Operational Requirements Document.** The ORD is a document that captures the information necessary to develop a proposed program, normally using an evolutionary acquisition strategy. The ORD outlines an affordable increment of militarily useful, logistically supportable, and technically mature capability. The ORD may define multiple increments if there is sufficient definition of the performance attributes to allow approval of multiple increments. The ORD supports a Milestone B decision review. The ORD has been replaced by the CDD.

**Original Baseline Estimate.** The cost estimate included in the original APB that is prepared before the program enters engineering and manufacturing development, or at program initiation, whichever occurs later. The original baseline estimate is only revised if the program has a critical Nunn-McCurdy breach.

**Program Acquisition Unit Cost.** Computed by dividing the Program Acquisition Cost by the Program Acquisition Quantity. Programs for which the current estimate of either the Program Acquisition Unit Cost or Average Procurement Unit Cost has increased by 15 percent or more over the currently approved APB must report a unit cost breach to the congressional defense committees.

**Resource Management Decision.** A budget decision document that reflects the decisions of the Secretary of Defense as to appropriate program and funding to be included in the annual defense budget request, which in turn is included in the President's

Budget. The document also contains the decisions by the Secretary of Defense reflecting broad strategic trades related to the program and resource levels identified in the Program Objective Memorandum.

**Stimulator.** The JLENS Stimulator is the Government's independent test tool that generates digital, real-time simulated signals to drive and test the radar's signal and data processors and tactical algorithms and inject simulated target returns for various target types into the real tactical data stream. The Stimulator will interface with the JLENS radar's tactical hardware and software and be capable of generating target returns (1) in real time, (2) with high fidelity, (3) in large numbers, and (4) in a variety of environments.

**Test and Evaluation Master Plan.** TEMP documents the overall structure and objectives of the test and evaluation program. It provides a framework within which to generate detailed test and evaluation plans and documents schedule and resource implications associated with the test and evaluation program. In addition, the TEMP identifies the necessary developmental test and evaluation, operational test and evaluation, and live-fire test and evaluation activities.

**Validation.** The process of determining the degree to which a model or simulation and its associated data are an accurate representation of the real world from the perspective of the intended uses of the model.

**Verification.** The process of determining that a model or simulation implementation and its associated data accurately represent the developer's conceptual description and specifications.

# Director, Defense Procurement and Acquisition Policy Comments



ACQUISITION,  
TECHNOLOGY  
AND LOGISTICS

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OFFICE OF THE UNDER SECRETARY OF DEFENSE  
3000 DEFENSE PENTAGON  
WASHINGTON, DC 20301-3000

JUL -5 2012

MEMORANDUM FOR PROGRAM DIRECTOR FOR ACQUISITION AND CONTRACT  
MANAGEMENT

THROUGH: DIRECTOR, ACQUISITION RESOURCES AND ANALYSIS

DoD OIG:  
(b) (6)

11-112

SUBJECT: Response to DoDIG Draft Report on "Joint Land Attack Cruise Missile Defense  
Elevated Netted Sensor System Not Ready for Production Decision" (Project No.  
D2011-D000AE-0181.000)

As requested, I am providing responses to the general content and recommendations  
contained in the subject report.

**Recommendation 1:**

(FOUO) We recommend that the Director of Defense Procurement and Acquisition Policy issue  
guidance reemphasizing the requirement for program managers to maintain requirement  
documents that show the rationale for how the procurement quantities were established for all  
weapon systems.

**Response:**

Concur. OUSD(AT&L) is currently staffing Acquisition Information Repository (AIR)  
implementation guidance. The AIR is a searchable repository that will provide the Defense  
acquisition community with access to a wide range of authoritative acquisition information. The  
AIR will also store approved milestone documents for ACAT 1D, ACAT IAM, and Special  
Interest programs. The repository will provide an institutionalized mechanism responsive to the  
report recommendation. The guidance should be issued by July 2012.

Please contact [redacted] if additional  
information is required. DoD OIG: (b) (6)

Richard Ginman  
Director, Defense Procurement  
and Acquisition Policy

# U.S. Army, Deputy Chief of Staff, G-3/5/7 Comments



DEPARTMENT OF THE ARMY  
Office of the Deputy Chief of Staff, G-3/5/7  
400 Army Pentagon  
Washington, DC 20310-0400

29 AUG 2012

DAMO-CIC

MEMORANDUM FOR PROGRAM DIRECTOR, ACQUISITION AND CONTRACT MANAGEMENT, DEPARTMENT OF DEFENSE OFFICE OF THE INSPECTOR GENERAL

SUBJECT: Joint Land Attack Cruise Missile Defense Elevated Netted Sensor (JLENS) System Not Ready for Production Decision (Project No. D2011-D000AE-0181.000)

1. Reference Department of Defense Office of the Inspector General (DODIG) report, Joint Land Attack Cruise Missile Defense Elevated Netted Sensor (JLENS) System Not Ready for Production Decision (Project No. D2011-D000AE-0181.000).
2. Per paragraph 4, page 15 of reference report, the Army is required to recommend a position on the number of JLENS orbits to be purchased. The Deputy Chief of Staff, G-3/5/7 recommends the U.S. Army procure no more JLENS orbits. The impact of the current fiscally constrained environment compels redirection of funding to other systems. In May 2012, the Defense Acquisition Executive re-certified the JLENS program at two Engineering, Manufacturing, and Development (EMD) orbits as part of the Acquisition Decision Memorandum in response to a Nunn-McCurdy breach. The Army is currently assessing the use of the JLENS EMD orbits for Homeland Defense.
3. The HQDA G-3/5/7 points of contact are [REDACTED]

DoD OIG: (b) (6)

Dr. David M. Markowitz  
Assistant Deputy Chief of Staff, G-3/5/7



# Cruise Missile Defense Systems Project Office Comments



REPLY TO  
ATTENTION OF

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DEPARTMENT OF THE ARMY  
PROGRAM EXECUTIVE OFFICE, MISSILES AND SPACE  
5250 MARTIN ROAD  
REDSTONE ARSENAL, AL 35898-8000

SFAE-MSLS-CMDS

25 June 2012

MEMORANDUM FOR Inspector General, Department of Defense, 4800 Mark Center Drive, Alexandria, VA 22350-1500

SUBJECT: Agency Response to Draft Report for Project No. D2011-D000AE-0181.000

1. (FOUO) Reference memorandum, Depart of Defense Office of the Inspector General, June 5, 2012, subject: Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS) Not Ready for Scheduled Production Decision (Project No. D2011-D000AE-00181.000).
2. (FOUO) Since the audit was initiated over a year ago, several major events have occurred which have had considerable impacts on the program, most significantly the elimination of procurement funding which resulted in a Nunn-McCurdy review by the Office of the Secretary of Defense. The elimination of procurement funds was based on availability of funds (i.e., "factors exogenous to the program"), not on the readiness of the JLENS program to enter production.
3. (FOUO) As a result of the Nunn-McCurdy review, the Under Secretary of Defense, Acquisition, Technology and Logistics in coordination with the Joint Requirements Oversight Council certified JLENS as essential to national security and directed the Army to continue the JLENS Engineering and Manufacturing Development (EMD) program phase through fiscal year 2014, but to not plan for production. These facts are relevant and should be reflected in the report.
4. (FOUO) The Cruise Missile Defense Systems (CMDS) Project Office has reviewed the above subject report and after the elimination of procurement funding, we agree with the overall determination that JLENS is not ready for the original Low Rate Initial Production (LRIP) Milestone C Decision date of September 2012. However, we do not agree with a number of specific statements made within the body of the report. Specific comments to the finding, the recommendations, and the background information provided in various sections of the above subject report are attached.
5. (FOUO) Recommend the name of the report be changed to: "Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS) Not Ready for Original Scheduled Production Decision."
6. Point of contact for this action is: [REDACTED]

DoD OIG: (b) (6)

Encls

Project Manager  
CMDS Project Office

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JLENS Comments to the DoDIG LRIP Report: Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System Not Ready for Production Decision, dated June 5, 2012

Comment #	Page	Report verbiage	Comment
FINDING		<p><del>(FOUO)</del> <b>Finding. JLENS Program Not Ready for Low-Rate Initial Production</b></p> <p><del>(FOUO)</del> The JLENS Product Manager did not effectively prepare the JLENS program for the LRIP phase of the acquisition process. Specifically, the JLENS Product Manager established a high-risk, schedule-driven strategy, rather than an event-driven strategy that minimized program risks. This occurred because the Product Manager did not want to put the program at risk of losing funding or potentially being terminated if the LRIP decision had to be delayed because more time was needed to address the program's technical challenges. In addition, the Army did not reduce its Orbit requirement to the quantity needed to support the updated JLENS mission because of disagreement within the requirements community on the quantity of JLENS Orbits needed to support the Integrated Air and Missile Defense mission. As a result, the timing of planned test events would not have provided the MDA with sufficient test information to make an informed LRIP decision in September 2012. Three developmental test events were delayed until after the scheduled LRIP decision. In addition, the JLENS Program Office, as a</p>	<p><b>Agree:</b> <del>(FOUO)</del> The Cruise Missile Defense Systems (CMDS) Project Office agrees with the overall determination that JLENS is not ready for the <u>original</u> September 2012 Low Rate Initial Production (LRIP) Milestone C Decision established on 5 August 2005.</p> <p><b>Disagree:</b> <del>(FOUO)</del> "CMDS Project Office disagrees with: "Specifically, the JLENS Product Manager established a high-risk, schedule-driven strategy, rather than an event-driven strategy that minimized program risks." <b>Although schedule is an important aspect of program strategy, since the final determination of when key events occur is based on readiness, the strategy is not schedule driven.</b></p> <p><b>Disagree:</b> <del>(FOUO)</del> "This occurred because the Product Manager did not want to put the program at risk of losing funding or potentially being terminated if the LRIP decision had to be delayed because more time was needed to address the program's technical challenges." <b>There are no objective data contained in the report to justify this comment, which represents an unsubstantiated leap of logic. If the DOD IG insists on sustaining the finding then objective substantiating data need to be added to the report and CMDS be provided the opportunity to review such data.</b></p> <p><b>Disagree:</b> <del>(FOUO)</del> CMDS Project Office disagrees with: "...the Army did not reduce its Orbit requirement to the quantity needed to support the updated JLENS mission because of disagreement within the requirements community on the quantity of JLENS</p>

Pages i and 8

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Comment #	Page	Report verbiage	Comment
		result of the updated JLENS mission requirement, was at risk of procuring nine more JLENS Orbits, at an estimated cost of <del>DoD OIG:</del> than needed to support the JLENS mission.	Orbits needed to support the Integrated Air and Missile Defense mission. In addition, the JLENS Program Office, as a result of the updated JLENS mission requirement, was at risk of procuring nine more JLENS Orbits, at an estimated cost of <del>DoD OIG:</del> than needed to support the JLENS mission." <b>The report does not address the reduction of JLENS orbits reflected in the FY12 President's Budget; and it does not capture the fact that it is at the Milestone C decision point where specific quantities are determined based on any evolving needs identified post Milestone B.</b>  <b>Disagree:</b> " <del>FOUO</del> Three developmental test events were delayed until after the scheduled LRIP decision." <b>The developmental tests that have been delayed beyond Milestone C are tests that were not previously approved by the MDA at Milestone B. The progress on all Key Performance Parameters will be demonstrated and made available to the MDA to enable an LRIP decision if a Milestone C review is scheduled. However, currently based on direction in the 24 May 2012 Nunn-McCurdy ADM, the JLENS Product Office is not preparing for production and no Milestone C review is scheduled.</b>
1	7	"We identified internal control weaknesses in test planning and defining requirements. Specifically, we determined that the Product Office delayed test events designed to demonstrate key capabilities until after the LRIP decision. Additionally, neither the Product Office nor any of the organizations involved in establishing the requirement for JLENS revised the quantity of orbits needed to support the Integrated Air and Missile	<b>Disagree:</b> The CMDS Project Office disagrees with "... internal control weaknesses in test planning ..." and "Specifically, we determined that the Product Office delayed test events designed to demonstrate key capabilities until after the LRIP decision." <b>None of the key developmental test events had been moved beyond the planned LRIP decision. The developmental tests that were delayed beyond Milestone C are tests that were not previously approved by the MDA at Milestone B as being needed for LRIP. Certain tests were always planned to be conducted after Milestone C. The CMDS Project Office sponsored and</b>

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Comment #	Page	Report verbiage	Comment
		Defense mission.”	<p>participated in numerous Test &amp; Evaluation Working Groups over the years of program execution and continuously document and communicate test requirements. The progress on all Key Performance Parameters will be demonstrated and made available to the MDA to enable an LRIP decision if a Milestone C review is scheduled. However, currently based on direction in the 24 May 2012 Nunn-McCurdy ADM, the JLENS Product Office is not preparing for production and no Milestone C review is scheduled.</p> <p><b>Disagree:</b> The CMDS Project Office disagrees with “... internal control weaknesses... in defining requirements” and “Additionally, neither the Product Office nor any of the organizations involved in establishing the requirement for JLENS revised the quantity of orbits needed to support the Integrated Air and Missile Defense mission.” The report does not address the reduction of JLENS orbits reflected in the FY12 President’s Budget; and it does not capture the fact that it is at the Milestone C decision point where specific quantities are determined based on any evolving needs identified post Milestone B. The CMDS Project Office had been working very closely with the IAMD Project Office and Army Staff to determine the number of procurement assets required to support multiple missions including IAMD for our Milestone C documentation. There are many checks/balances and required acquisition reports and reviews that address funding requirements, quantity requirements and the current program status and involve not only the Product Office and PEO but the user and personnel from the Department of Army (DA), ASA(ALT), G/3/5/8, Office of the Secretary of Defense (OSD) and Congress. Some of these reports include Army Acquisition Executive Program Status Reviews, Contractor Performance Reports, System Performance Progress Reviews,</p>

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			Transparency Reviews to DA in support of P&R forms, Defense Acquisition Executive Summary Reports, Smart Charts, P&R Form submissions and reviews, Selected Acquisition Reports, DA G-8 FDE/EDG Program/Funding Reviews, Weapon System Reviews, POM cycle reviews, Capability Portfolio Reviews (CPRs), Configuration Steering Boards (CSB), DABs, JROCs, ASARCs, Council of Colonels, etc.
2	8	“Specifically, the JLENS Product Manager established a high-risk, schedule-driven strategy, rather than an event-driven strategy that minimized program risks.”	<b>Disagree:</b> Events are projected on the schedule, but all major test events go through a Test Readiness Review (TRR) which is attended by OSD and ATEC to independently validate preparation for the event is adequate; if information is found during the walk-up meetings to the TRR or in the formal TRR that indicates non-readiness for the event, the event is rescheduled. Although schedule is an important aspect of program strategy, since the final determination of when key events occur is based on readiness, the strategy is not schedule driven.
3	8	“Three developmental test events were delayed until after the scheduled LRIP decision.”	<b>Disagree:</b> The developmental tests that have been delayed beyond Milestone C are tests that were not previously approved by the MDA at Milestone B. The progress on all Key Performance Parameters will be demonstrated and made available to the MDA to enable an LRIP decision if a Milestone C review is scheduled. However, currently based on direction in the 24 May 2012 Nunn-McCurdy ADM, the JLENS Product Office is not preparing for production and no Milestone C review is scheduled.
4	8	“The Army Acquisition Executive approved the program restructure in March 2004 and directed the Product Manager to provide a fully funded program at program initiation	<b>Partially Disagree:</b> This is an implied quote from the ADM. That statement does not capture the full quote and as such is out of context. PMs do not resource; PMs have never and do not currently resource. That is a Title 10 Service function executed by,

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		(Milestone B) within existing funding levels."	in the Army's case, the HQ DA G-8 and underwritten by OSD as part of the POM process.
5	8	"Although the total funding over the Program Objective Memorandum was adequate to execute the JLENS program through the LRIP decision, the funding was heavily weighted toward the out years."	<b>Partially Disagree:</b> Most RDTE programs have a slow ramp leading to larger expenditures as they get past CDR where the larger investments are required for integration, prototyping and testing. Therefore, JLENS is not abnormal.
6	9	"The writing of an additional DoD lines of code represent a substantial development effort, which indicated that the software was not near its intended state and had not been tested."	<b>Disagree:</b> The DoD lines of code estimated was to develop DoD of the FCR software rather than the full 100%. We do not agree that the definition of substantial incorporates that low a percentage. Carnegie Mellon software experts and the OSD systems engineering team who participated in our PDR and CDR did not flag this as a substantial software development.
7	9,10	"However, Defense Contract Management Agency officials stated that even with the additional engineering support, they were not certain that all software problems could be resolved within the current JLENS schedule."	<b>Disagree:</b> At the time of data collection for this report, there were significant issues with the Fire Control Radar; however, most of those problems have been resolved, during the ensuing 11 months and the radar met performance specification with significant performance margin during Developmental Test 1.
8	10	Figure 3. JLENS Key Event Schedule	<b>Disagree:</b> The schedule in Figure 3 does not represent the Product Manager's estimate, but was a Raytheon proposed schedule that was rejected by the Army.
9	11	"The most significant schedule delay occurred in the area of developmental testing. For example, nearly all planned developmental testing was originally scheduled for completion at or before the	<b>Disagree:</b> None of the key developmental test events had been moved beyond the planned LRIP decision. Certain tests, such as the Logistics and Maintenance Demonstration, March Order Emplacement, Climatic testing, and others, were always planned to be conducted after Milestone C; this schedule was approved by the

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Comment #	Page	Report verbiage	Comment
		LRIP decision. However, the problems integrating the fire control software caused three key developmental test events to be delayed until after the scheduled LRIP decision."	MDA at Milestone B.
10	11	"Also, because the surveillance radar was deployed to support a Combatant Commander exercise, only the fire control radar was present during the first developmental test."	<b>Disagree:</b> The Surveillance Radar was never deployed to a COCOM exercise; although, the JLENS Product Office was prepared to do so. The Fire Control Radar only was used as a part of DT-1; however, the Surveillance Radar was at the test range and was in the process of undergoing further development with concentration on software updates and surface moving target tracking capability.
11	11	"JLENS Product Office approached and received approval from the JROC to defer PEO MS: (b) (3) until full operational capability."	<b>Agree with Basic Statement:</b> The JROC agreed with putting off PEO MS: (b) (3) post MS C. This was in large part because we (the PMO) exercised due diligence in attempting to resolve the issues. PEO MS: (b) (3) is significantly bigger than JLENS; it is an OSD-level/multi-Service issue. If the JLENS program chose to pursue this capability, the IG clearly has grounds to take issue because the requirements are not defined.
12	11	"Although the JROC relaxed these program requirements for initial operational capability, it will allow the JLENS to enter production without those capabilities being sufficiently tested to demonstrate that JLENS will be able to operate in a useful way consistent with realistic operational requirements. PEO MS: (b) (3) We believe, however, that in order to meet the	<b>Disagree:</b> The JROC confirmed that PEO MS: (b) (3) provided sufficient data to the MDA to make an LRIP decision. In a 23 June 2011 Memorandum, the JROC stated that: "For Initial Operational Capability (IOC), system operational capabilities PEO MS: (b) (3) will be verified through independent operational test and evaluation. At a minimum, a limited initial assessment of system performance PEO MS: (b) (3)

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Comment #	Page	Report verbiage	Comment
		intent of Section 2399, Title 10 United States Code (10 U.S.C. § 2399), "Operational Test and Evaluation of Defense Acquisition Programs," paragraph (a), (b).(2)(A) and (B) this testing should be done before production."	PEO MS: (b) (3) based on developmental testing, analysis, and simulation will be sufficient to support IOC." This memorandum went on to state the PEO MS: (b) (3) operational testing and actual testing PEO MS: (b) (3) were not needed until Full Operational Capability declaration and that these tests could occur in follow-on test and evaluation events. The Director of Operational Test and Evaluation concurred with the approach.
13	12	"The initial JLENS Orbit requirement was derived from the JLENS Analysis of Alternatives (AoA) that was completed in February 2003."	<b>Agree with basic statement:</b> However, the following discussion focuses on the Army role in the AoA, it misses the fact that the final approval of the AoA was at the OSD level.
14	15	"Schedule-Driven Strategy Adopted"	<b>Disagree:</b> Events are projected on the schedule, but all major test events go through a Test Readiness Review (TRR) which is attended by OSD and ATEC to independently validate preparation for the event is adequate; if information is found during the walk-up meetings to the TRR or in the formal TRR that indicates non-readiness for the event, the event is rescheduled. Although schedule is an important aspect of program strategy, since the final determination of when key events occur is based on readiness, the strategy is not schedule driven.
15	17	"The Product Manager also compressed the test schedule and did not plan to conduct developmental tests that the MDA would normally require before the LRIP decision."	<b>Disagree:</b> The developmental tests that were delayed beyond Milestone C are tests that were not previously approved by the MDA at Milestone B as being needed for LRIP.
16	17	"Instead, the Product Manager decided to use modeling and simulation and a simulator to supplement the testing. The models and	<b>Disagree:</b> JSTM was not meant to be the sole answer to demonstrate full system capability; the JSTM should be able to test radar performance, but it does require other Modeling & Simulation

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		simulations, however, lacked the robustness needed to demonstrate the full system capability. Additionally, the simulator which the TEMP states would provide the key data needed to evaluate JLENS performance where testing was cost-prohibitive still needed to be verified, validated, and accredited."	or hardware components to fully test out Single Integrated Air Picture, Integrated Fire Control and Net Ready. JSTM is scheduled to be VV&A'd in support of LUT. Program managers regularly work with the Army and the OSD staff to balance testing requirements. Modeling and Simulation is a critical part of major weapons systems development to assist the PM and external staff in make programming and testing decisions with the ultimate goal of reducing program costs.
Recommendation #1	19	<del>(FOUO)</del> Director of Defense Procurement and Acquisition Policy issue guidance reemphasizing the requirement for program managers to maintain requirement documents that show the rationale for how the procurement quantities were established for all weapon systems.	<b>Disagree:</b> We are not aware of a prior "emphasis", guidance, or direction for PMOs to "maintain requirement documents that show the rationale for how the procurement quantities were established for all weapon systems". PMOs are not the proponents/offices of primary responsibility for operational requirements documentation including the basis of quantity requirements. Operational requirements and procurement quantities are part of the requirements generation and PPBS processes including establishment of Army Acquisition Objectives and Army Procurement Objectives.
Recommendation #3	20	<del>(FOUO)</del> JLENS Product Manager delay the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System low-rate initial production decision until complete and satisfactory developmental test reports and an operational assessment are available to allow the Milestone Decision Authority to make an informed low-rate initial production decision.	<b>Agree:</b> <del>(FOUO)</del> CMDS will comply with the Under Secretary of Defense Acquisition, Technology and Logistics 24 May 2012 Acquisition Decision Memorandum (ADM) issued as a result of the Nunn-McCurdy Review (copy attached). Per direction in the ADM, the following actions will be accomplished: <ul style="list-style-type: none"> <li>• Restructure the JLENS program to consist of two Engineering and Manufacturing Development (EMD) orbits; no action will be taken to procure the support equipment and government furnished equipment required for the second JLENS orbit or plan for entry of the JLENS program into the production phase.</li> <li>• By 23 Jul 12, with Office of the Secretary of Defense staff, review and report to the Milestone Decision Authority the</li> </ul>

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			<p>current program office staffing levels to ensure adequate personnel are available to execute the restructured program. The review will include military billets, civilian personnel funding, and fill plans.</p> <ul style="list-style-type: none"><li>• By 30 Sep 12 staff the JLENS program office to the approved staffing levels</li><li>• By 4<sup>th</sup> Quarter FY13, complete scheduled EMD test and evaluation to include the Naval Integrated Fire Control-Counter Air (NIFC-CA) demonstration, Limited User Test, Developmental Test 2, and Developmental Test 3</li><li>• Assist in site selection and planning for the employment of one JLENS orbit in support of an operational Continental United States (CONUS)-based exercise and, when a location is determined and orders are approved by the National Command Authority, to conduct such employment.</li><li>• Continue to develop planned capabilities, assess test results, and correct short-comings/deficiencies.</li><li>• Develop documentation to track and assess program status.</li><li>• By Third Quarter FY13: Return to the Defense Acquisition Board (DAB) for an interim progress review to assess the program's status based on the results of developmental test and evaluation.</li></ul>
Recommendation #4	20	<p><del>(FOUO)</del> Assistant Secretary of the Army (Financial Management and Comptroller) use the results of the Joint Integrated Air and Missile Defense Organization study to determine whether to:</p> <p><del>(FOUO)</del> a. Terminate the program, and</p> <p><del>(FOUO)</del> b. Reprogram the <del>DoD</del> in procurement funding that is allocated to the Joint Land Attack Cruise Missile Defense</p>	<p><b>Disagree:</b> The 24 May 2012 ADM issued as a result of the OSD Nunn-McCurdy review included the following: determined that the continuation of the program is essential to the national security; that PEO MS: (b) (3) that the new estimates of the program acquisition unit cost or procurement unit cost have been determined by the Director of Cost Assessment and Program Evaluation (CAPE) to be reasonable.</p>

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		Elevated Netted Sensor System across the FY 2012 to FY 2016 Future Years Defense Program and any unexpended Research, Development, Test, and Evaluation and Military Construction funding.	

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Inspector General  
Department of Defense

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