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Inspector General
United States
Department of Defense

# Ballistic Testing and Product Quality Surveillance for the Interceptor Body Armor - Vest Components Need Improvement

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## Acronyms and Abbreviations

| | |
|---|---|
| AQL | Acceptance Quality Limit |
| COPD | Contract Purchase Description |
| DAP | Deltoid and Axillary Protector |
| DCMA | Defense Contract Management Agency |
| FAR | Federal Acquisition Regulation |
| FAT | First Article Test |
| GAO | Government Accountability Office |
| IBA | Interceptor Body Armor |
| IG | Inspector General |
| IOTV | Improved Outer Tactical Vest |
| LAT | Lot Acceptance Test |
| OTV | Outer Tactical Vest |
| PDM | Preliminary Design Model |
| PEO | Program Executive Office |
| PM SEQ | Program Manager for Soldier Equipment |
| QALI | Quality Assurance Letter of Instruction |
| QAR | Quality Assurance Representative |
| RDECOMAC | Research, Development and Engineering Command Acquisition Center |

INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
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January 3, 2011

MEMORANDUM FOR AUDITOR GENERAL, DEPARTMENT OF THE ARMY
COMMANDING GENERAL, PROGRAM EXECUTIVE OFFICE SOLDIER
DIRECTOR, DEFENSE CONTRACT MANAGEMENT AGENCY
DIRECTOR, DEFENSE CONTRACT MANAGEMENT AGENCY ORLANDO

SUBJECT: Ballistic Testing and Product Quality Surveillance for the Interceptor Body Armor – Vest Components Need Improvement (Report No. D-2011-030)

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 ballistic testing and product quality surveillance for the Interceptor Body Armor – Vest Components could provide only limited assurance that the vest components met contract requirements. This is the third in a series of Interceptor Body Armor reports in response to a congressional request.

The Defense Contract Management Agency and Army Program Executive Office Soldier comments conformed to the requirements of DoD Directive 7650.3; therefore, additional comments are not required.

We appreciate the courtesies extended to the staff. Please direct questions to me at (703) 604-9071 (DSN 664-9071).

Bruce A. Burton
Deputy Assistant Inspector General
Acquisition and Contract Management

# Results in Brief: Ballistic Testing and Product Quality Surveillance for the Interceptor Body Armor – Vest Components Need Improvement

## What We Did

We are performing a series of Interceptor Body Armor audits in response to a congressional request. This audit covered six contracts valued at $434 million awarded to Point Blank Body Armor, Inc. for vest components. We determined that the ballistic testing of the Interceptor Body Armor – Vest Components for five contracts and product quality surveillance for six contracts could only provide limited assurance that the vest components met contract requirements.

## What We Found

The Army Program Manager for Soldier Equipment (PM SEQ) did not consistently enforce ballistic testing requirements for the five contracts. On two of the five contracts, PM SEQ lowered the testing requirements after three individual tests did not achieve the minimum velocity requirements. PM SEQ lowered the requirement to reduce the risk from fielding delays. On all five contracts, PM SEQ waived an accelerated aging test because they no longer believed the test was appropriate. On 1 of the 5 contracts, PM SEQ accepted 70 lots before a First Article Test (FAT) was performed because the materials used were identical to previously approved materials. Of 900 lots on the five contracts, 560 met the lot acceptance test (LAT) requirements. For the remaining 340 lots, PM SEQ did not require LATs because either the materials were previously approved, or PM SEQ did not require the insertion of new ballistic panels.

We did not conduct any testing of the vest components acquired through the five contracts; therefore, we do not know whether the above conditions affected the performance of the vest components. However, if the ballistic testing requirements are not implemented in accordance with contract requirements, the Army cannot assure that the vest components meet the contract requirements, which were developed to provide an appropriate level of protection for the warfighter.

Defense Contract Management Agency (DCMA) Orlando personnel did not use a proper random sampling methodology that provided a representative sample for five contracts with 560 LATs. This occurred because DCMA personnel incorrectly believed their sampling process provided a representative sample. As a result, the LAT results cannot be relied upon to project whether an entire lot met the contract requirements. Also, 693 lots or 75 percent of the total lots for six contracts lacked quality inspection records. This occurred because the records were either destroyed by Hurricane Wilma or maintained for only 2 years. Without adequate records, DCMA cannot ensure the integrity of the product quality surveillance process.

## What We Recommend

That the Army Program Executive Office Soldier require any waivers of FAT and LAT be approved in writing and perform a risk assessment on 560 lots. Further, DCMA Orlando should provide training on the use of a random sample generator tool and improve quality inspection records.

## Management Comments and Our Response

The Army Program Executive Office Soldier and DCMA generally agreed with the recommendations, and their comments were responsive to the intent of the recommendations. No further comments are required. Please see the recommendations table on the back of this page for details.

# Recommendations Table

| Management | Recommendations Requiring Comment | No Additional Comments Required |
|---|---|---|
| Commanding General, Army Program Executive Office Soldier | | A, B.1 |
| Director, Defense Contract Management Agency Orlando | | B.2.a, B.2.b, and B.2.c |

# Table of Contents

# Introduction

## Audit Objectives

The audit objective was to evaluate the product quality assurance for six Interceptor Body Armor (IBA) contracts awarded to Point Blank Body Armor, Inc. (Point Blank) for Outer Tactical Vests (OTVs) and components. Specifically, we determined whether the ballistic test results for first article tests (FATs) and lot acceptance tests (LATs) met the contract requirements. Further, we determined whether quality assurance personnel performed the product quality surveillance in accordance with the contract requirements. See Appendix A for a discussion of scope and methodology and prior coverage. Finding A discusses the ballistic test results for five of the six contracts awarded to Point Blank. Finding A does not discuss the sixth contract, W91CRB-05-F-0072, because it did not require ballistic testing. That contract was to convert the current camouflage pattern to the Universal Camouflage pattern of all OTV and components. Finding B discusses the product quality surveillance for all six contracts.

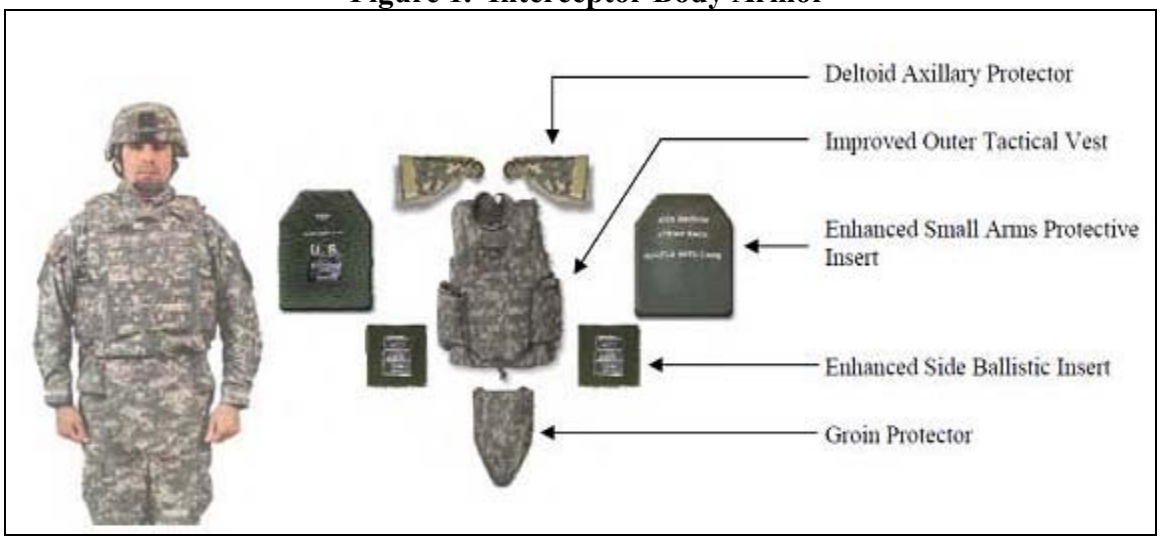
## Background on Interceptor Body Armor

This is the third in a series of reports that will be issued in response to a request from Congresswoman Slaughter (see Appendix B). DoD Inspector General (IG) Report No. D-2008-067, "DoD Procurement Policy for Body Armor," March 31, 2008, identified 13 contracts that did not have documentation of first article testing. In a June 23, 2008, letter, Congresswoman Slaughter requested that the DoD IG conduct a further review of the 13 contracts. Of the 13 contracts, the Army awarded 6 contracts to Point Blank for the OTV and components from June 2004 through May 2006 with a total value of $434 million. See Appendix D for details on the six contracts.

### *Interceptor Body Armor – Vest Components*

IBA is a modular body armor system that consists of an OTV, ceramic plates, and components that increase the area of coverage. IBA increases survivability by stopping or slowing bullets and fragments and reducing the number and severity of wounds. See Figure 1 for a diagram of the IBA system.

**Figure 1. Interceptor Body Armor**




Source: Army Program Executive Office Soldier

The OTV is an integral component of the IBA system. A complete OTV subsystem consists of a base vest and a yoke and collar assembly, a throat protector assembly, and a groin protector assembly (hereafter referred to as vest components). The OTV is compatible with the deltoid and axillary protectors (DAPs), which provide additional fragmentation and small arms protection to the upper arm and underarm areas.

Each vest component comprises an outershell, ballistic panels, and an outershell inner lining. The ballistic panels contain a number of plies that are constructed from Kevlar and Twaron material, also referred to as ballistic material. For the contracts we reviewed, there were two different ballistic packages—Pathfinder and Pathfinder-S. Each ballistic package contained a different combination of the number of the ballistic plies.

In May 2007, the Army updated the OTV subsystem to the Improved Outer Tactical Vest (IOTV). The IOTV subsystem consists of a base vest assembly, front yoke and collar assembly, back yoke and collar assembly, lower back protector assembly, groin protector assembly, and deltoid protector components.

## *Organizations Responsible for Quality Assurance Oversight*

The Army Research, Development and Engineering Command Acquisition Center (RDECOMAC); Army Program Executive Office (PEO) Soldier; and the Defense Contract Management Agency (DCMA) were responsible for overseeing the six contracts.

RDECOMAC provides acquisition and contracting support to the soldier "with the latest technology and goods and services." RDECOMAC was designated as the Command Acquisition Center on July 27, 2004. Prior to that, it was called the Robert Morris Acquisition Center. Two of the six contracts were awarded by the Robert Morris Acquisition Center before it was renamed RDECOMAC. We refer to the Acquisition Center throughout this report as RDECOMAC.

PEO Soldier, a component of TACOM Life Cycle Management Command, develops and fields equipment so that U.S. soldiers are protected in missions that span the full spectrum of military operations. PEO Soldier ensures that the soldier and everything he or she wears or carries works together as an integrated system. The desired result is an overall systematic design that enhances the soldier's ability to accomplish individual and collective tasks, improves quality of life, builds confidence, and saves lives.

A division of PEO Soldier, the Program Manager Soldier Equipment (PM SEQ), develops, fields, and sustains equipment to advance warfighting capabilities. PM SEQ procures, adapts, or develops sensors, lasers, clothing and other individual equipment, and survivability items. PM SEQ was responsible for the technical aspects of the six vest component contracts, such as developing and coordinating the product descriptions and specifications as well as scoring the FAT and LAT results.

PM SEQ was restructured on July 8, 2009, and renamed Project Manager Soldier Protection and Individual Equipment. PM SEQ was the name of the division at the time the contracts were awarded; therefore, we refer to Project Manager Soldier Protection and Individual Equipment as PM SEQ.

DCMA, a DoD combat support agency, provides contract management services, covering pre-award and post-award activities. For post-award, DCMA is responsible for ensuring contractors' compliance with contractual terms and conditions, ranging from cost and schedule analysis to on-site surveillance. DCMA Orlando was responsible for inspection and acceptance of the products obtained under the six contracts.

## *Quality Assurance Requirements for the Vest Components*

Federal Acquisition Regulation (FAR) part 46, "Quality Assurance," prescribes policies and procedures to ensure that supplies and services acquired under Government contract conform to the contract's quality and quantity requirements. The FAR further states that quality requirements include inspection, acceptance, warranty, and other measures. The IBA contract purchase description (COPD) provides the requirements for the material, design, ballistic performance, and inspections for the IBA products. The COPD divides the Quality Assurance requirements into four categories; see Table 1 for details.

**Table 1. Quality Assurance Categories**

| Testing | Inspection | Demonstration | Analysis |
|---|---|---|---|
| When testing—FAT or LAT—of the components is required, the Army examines ballistic test results in accordance with the COPD. Approval of a FAT could result in full rate production and approval of a LAT could result in lot acceptance. | Prior to lot acceptance, DCMA selects representative components and inspects their characteristics to ensure compliance with the COPD. Further, DCMA performs on-site inspection of the manufacturing process. | During the component inspection, DCMA verifies whether or not the component is serviceable. For example, a snap fastener is one of the major component's characteristics — DCMA works the snap fasteners to ensure they function properly. | To monitor the component's performance, the Army analyzes and compares test results from month to month. If the Army identifies any signs that the components' performance degraded, the Army should work with the vendor to address the concern. |

## Internal Control Weaknesses for Product Quality Surveillance Process

We identified internal control weaknesses in the product quality surveillance process over the IBA Program as defined in DoD Instruction 5010.40, "Managers' Internal Control (MIC) Program Procedures," January 4, 2006. Specifically, PM SEQ lowered the minimum velocity requirements and waived the LAT requirements, which were not documented at the time the decision was made; and support contractors approved the LAT results, an inherently governmental function. Further, DCMA Orlando did not use a statistical sampling methodology to ensure a correct representative sample was selected for LAT and product quality surveillance records were not retained for 6 years and 3 months as required by the FAR and its record retention instruction. Appendix C shows details of the product quality surveillance process and the areas needing improvements. We will provide a copy of the report to the senior official responsible for internal controls at the Army and DCMA.

# Finding A. Limited Assurance Obtained From Ballistic Testing for the Vest Components

The PM SEQ did not consistently enforce ballistic testing requirements for the five vest component contracts. This occurred because of the following:

- Ballistic testing for a FAT on two of the five contracts did not achieve the minimum velocity requirements detailed in the COPD during three individual tests. According to the Director, Technical Management Division, PM SEQ lowered the velocity requirements to reduce the risk of fielding delays, excessive quantity of rejected products, and contract defaults.

- PM SEQ did not require an accelerated aging test on another FAT for any of the five contracts as required by the COPD. According to the chief scientist at PM SEQ, the accelerated aging test was not appropriate for the materials now used in the vest components. However, PEO Soldier officials stated that the accelerated aging test was and still is required.

- On one of the five contracts, PM SEQ accepted 70 lots of the vest components before a FAT or an equivalent test was performed. According to the chief scientist, a FAT was not required because the components used materials that were identical to previously approved materials.

- Of 900 lots on the five contracts, 560 lots passed LATs. For the remaining 340 lots, PM SEQ did not require LATs. Specifically, for 318 of those lots, the Director, Technical Management Division, stated that LATs were not required because the components used materials that were identical to previously approved materials. For the remaining 22 lots, PM SEQ officials stated that LATs were not required because the contract did not authorize the insertion of any new ballistic panels.

As a result, the Army has only limited assurance that the vest components acquired through the five contracts meet the contract requirements. We did not conduct any testing of the vest components purchased through the five contracts; therefore, we do not know whether the above conditions affected the performance of the vest components. However, if the ballistic testing requirements are not implemented in accordance with contract requirements, or vest components are accepted before the completion of ballistic testing, the Army cannot assure that the vest components meet the contract requirements, which were developed to provide an appropriate level of protection for the warfighter.

## Testing Process for the Vest Components

When soliciting bids for a contract, RDECOMAC can require the contractors to submit the item or items for a Preliminary Design Model (PDM) test. The PDM test allows RDECOMAC to evaluate which of the submitted models meet the product specifications and represent a best value for award selection. In general, a PDM would not undergo the same tests as a full FAT, although RDECOMAC could require a full FAT for the PDM test.

After the contract award and before the contractor begins full rate production, RDECOMAC requires a FAT to ensure that the selected contractor can continuously manufacture the vest components to the contract requirements and product specifications. RDECOMAC can waive a FAT if the contractor had previously furnished the same product that had been approved as meeting all contract requirements. Further, RDECOMAC can waive a FAT based on the results of the PDM test that included all the FAT requirements. Additionally, RDECOMAC requires a new FAT if the contractor makes any material or process changes to the approved ballistic package. During the production phase, RDECOMAC requires LATs to detect and correct any random defects prior to Government acceptance. PM SEQ is responsible for the technical aspects of the vest components and provides RDECOMAC with the product quality requirements such as testing and inspection requirements for incorporation in the contracts. Further, PM SEQ is responsible for reviewing all the ballistic tests (PDMs, FATs, and LATs) to determine whether they are in accordance with the contract requirements detailed in the COPD. Upon completion of the test, PM SEQ will inform RDECOMAC whether the items have passed the required test.

Ballistic testing is conducted to ensure that the vest components provide the required protection before issuing them to warfighters. The test requirements that the items must meet are detailed in the COPD. During testing, the test samples or vest components are attached to a clay block, also referred to as clay backing material, which acts as a substitute for a warfighter's body mass. From January 30, 2002, to March 13, 2007, PM SEQ revised the COPD specifying the ballistic testing standards for the vest components eight times. When analyzing the FAT/LAT, we compared the test results to a referenced COPD. If the FAT/LAT did not reference a COPD, we used the COPD that was in effect when the test occurred.

According to the COPD, ballistic testing is divided into two categories, $V_0$ Ballistic Resistance and $V_{50}$ Ballistic Limit. The COPD required one $V_0$ test and 18 $V_{50}$ tests for the vest components, except for the yokes. For the yokes, the COPD required a total of 12 $V_{50}$ tests at which the required velocity is slightly higher than for other components.

$V_0$ testing is conducted by shooting a specific projectile at a given velocity at a ballistic panel to determine whether the armor provides full protection. One of the parameters that should be considered when measuring $V_0$ results is back face deformation—the depth of the crater left in the clay for each partial penetration represents the blunt force trauma inflicted on the wearer, which can contribute to injury, incapacitation, or death. The back face deformation should not exceed 1.73 inches or about 44 millimeters. $V_0$ results are

measured based on five shots—three at 0 degree obliquity[1] and two at 30 degree obliquity. $V_{50}$ testing is conducted to determine the velocity at which a complete or partial penetration of the armor is equally likely to occur. $V_{50}$ results are calculated based on a minimum of six shots—three complete penetrations and three partial penetrations, also known as Average $V_{50}$. The $V_0$ and $V_{50}$ velocities should meet or exceed the COPD requirements.

# Previously Conducted Tests Used to Waive First Article Tests

FAR subpart 9.3, "First Article Testing and Approval," allows PM SEQ and RDECOMAC to waive the FAT based on previously accepted tests. Specifically, FAR 9.306, "Solicitation Requirements," states:

> Solicitations containing a testing and approval requirement shall . . . (c) Inform offerors that the requirement may be waived when supplies identical or similar to those called for have previously been delivered by the offeror and accepted by the Government (see 52.209-3(h) and 52.209-4(i)) . . .

We reviewed the FATs and LATs for five contracts awarded to Point Blank. PM SEQ and RDECOMAC used previously conducted PDM tests to waive the FAT requirement for two ballistic packages—Pathfinder and Pathfinder-S. To justify waiving the FAT, PM SEQ and RDECOMAC provided one PDM test for the Pathfinder and one PDM test for the Pathfinder-S. See Table 2 for specific ballistic packages used for each contract.

## *Preliminary Design Model Test Results Met FAT Requirements With Exceptions*

Contracts W91CRB-04-D-0014 (contract 0014) and W91CRB-04-F-0126 (contract 0126) were awarded using the Pathfinder ballistic package for the vest components. PM SEQ waived the FAT for contracts 0014 and 0126 based on a 2002 PDM test for the Pathfinder ballistic package. However, three individual tests that were part of the 2002 PDM did not achieve the minimum velocity requirements detailed in COPD 00-02. The technical director explained that the ballistic requirements for the three individual tests were incorrectly established in the original COPD 00-02. Consequently, PM SEQ revised the minimum velocity requirements and registered the new requirements in COPD 00-02A, allowing the 2002 PDM test to meet the revised FAT requirements detailed in COPD 00-02A.

In December 2004, PM SEQ transitioned from the Pathfinder to the Pathfinder-S ballistic package for the vest components. The Pathfinder-S ballistic package was used for all five contracts: contract 0014, contract 0126, W91CRB05-D-0003 (contract 0003), W91CRB-05-P-0204 (contract 0204), and W91CRB-06-F-0024 (contract 0024). The

[1] Obliquity is a measure, normally in degrees, of the extent to which the impact of a projectile on an armor material deviates from a line normal to the target.

PDM test for the Pathfinder-S met the FAT requirement in COPD 0-02D, except for the accelerated aging test. The chief scientist at PM SEQ stated that this test is not appropriate for the vest materials but did not provide any additional support for the statement. Table 2 provides a listing of the contracts, the applicable ballistic package, and the PDM used to waive the FAT.

**Table 2. PDM Tests Used to Waive FAT for Each Contract**

| Contract Number (W91CRB-) | Vest Compo-nent | Contract Award Date | PDM Used to Waive FAT | Ballistic Package Name | PDM Met FAT Requir-ements | Appli-cable COPD |
|---|---|---|---|---|---|---|
| 04-D-0014 | DAP | 6/7/2004 | 2002 | Pathfinder | Yes | 00-02A |
| | | | 12/3/2004 | Pathfinder-S | Yes* | 00-02D |
| 04-F-0126 | OTV | 7/7/2004 | 2002 | Pathfinder | Yes | 00-02A |
| | | | 12/3/2004 | Pathfinder-S | Yes* | 00-02D |
| 05-D-0003 | OTV and Yokes and Collars | 12/22/2004 | 12/3/2004 | Pathfinder-S | Yes* | 00-02D |
| 05-P-0204 | OTV Retrofit | 9/26/2005 | 12/3/2004 | Pathfinder-S | Yes* | 00-02D |
| 06-D-0024 | OTV Retrofit | 6/15/2006 | 12/3/2004 | Pathfinder-S | Yes* | 00-02D |

*This PDM did not contain an accelerated aging test; see Pathfinder-S Ballistic Package Met the Test Requirements section below for details.

## Ballistic Testing Requirements Were Not Revised in a Timely Manner

Contracts 0014 and 0126 were awarded for the Pathfinder ballistic package. PM SEQ program officials explained that for contracts 0014 and 0126 the FAT was initially waived based on the 2002 PDM test for the Pathfinder ballistic package. The 2002 PDM test was a collection of 35 individual tests conducted in February, March, August, November, and December 2002. Because several tests did not identify the COPD, our analysis was based on the COPD in effect at the time the tests were performed. We identified three tests that did not achieve the minimum $V_{50}$ velocity requirements detailed in COPD 00-02, dated January 30, 2002; see Table 3 for details.

After we raised concerns that the 2002 PDM test was inadequate for waiving the FAT for contracts 0014 and 0126, PM SEQ program officials provided additional documentation. The additional documentation indicated the 2002 PDM was tested against the ballistic requirements in COPD 00-02A, dated July 10, 2002. Based on COPD 00-02A, the 2002 PDM test met the ballistic requirements and was a valid basis for waiving the FAT for

contracts 0014 and 0126. However, the ballistic requirements were lower in COPD 00-02A than in COPD 00-02; see Table 3 for details.

**Table 3. $V_{50}$ Velocity Changes in the COPD**

| Test Requirements | 2002 PDM Test Results | | COPD 00-02, dated 1/30/2002, Minimum $V_{50}$ Velocity (feet/second) | COPD 00-02A, dated 7/10/2002, Minimum $V_{50}$ Velocity (feet/second) |
|---|---|---|---|---|
| | Test Date | $V_{50}$ Velocity (feet/second) | | |
| 16 gr.* RCC** $V_{50}$ @ 0 degree dry | 2/25/2002 | 2085 | 2120 | 2000 |
| 4 gr. RCC $V_{50}$ @ 45 degree dry | 2/26/2002 | 2540 | 2550 | 2460 |
| 16 gr. RCC $V_{50}$ @ 0 degree cold | 3/1/2002 | 2090 | 2120 | 2000 |

* Grain (gr.) is the traditional unit of weights, which in this case is the weight of the threat munitions or gun powder.
** RCC is the Right Circular Cylinder, a three-dimensional figure; the bases are circles and are perpendicular to the height of the cylinder.

The technical director explained that the ballistic requirements for $V_{50}$ were incorrectly established in COPD 00-02. He stated that an industry expert informed the Army Natick Soldier Center that a body armor contractor cannot stay in business with these ballistic requirements because 50 percent of the vest components would not meet the requirements. According to the technical director, the industry expert advised that if the ballistic requirements were left unchanged, it would result in fielding delays, excessive quantity of reject products, and likely contract default. The technical director stated that to eliminate these unacceptable risks, PM SEQ reduced the $V_{50}$ requirements and issued COPD 00-02A.

Although the technical director's justification appears reasonable, the timing of the change is questionable. The industry expert brought the issue to the PM SEQ's attention in May 2000. However, the documentation that PM SEQ provided did not indicate if the expert's advice was intended for the ballistic requirements that were in effect in May 2000 or in COPD 00-02. Further, the documentation showed that PM SEQ had almost 20 months to implement the industry expert's advice in COPD 00-02, which became effective on January 30, 2002. The three tests that did not achieve the minimum velocity were conducted prior to the implementation of COPD 00-02A. In the future, PM SEQ needs to ensure that changes to the COPD are implemented timely and the rationale documented in the program and contract files.

## Pathfinder-S Ballistic Package Met the Test Requirements

The PDM test for Pathfinder-S Ballistic Package conducted on December 3, 2004, met the FAT requirements, except for the accelerated aging test. PM SEQ program officials used the PDM test for the Pathfinder-S ballistic package to waive the FAT and authorize full rate production for three contracts—0003, 0204, and 0024. In addition, PM SEQ waived the FAT for the Pathfinder-S ballistic package when it replaced the Pathfinder ballistic package on contracts 0014 and 0126.

The one exception to the FAT requirements was the accelerated aging test. According to the chief scientist at PM SEQ, the accelerated aging test is a very old requirement that was carried over from a prior COPD. The test was for the rubbery material and not intended for the Kevlar and Twaron now used in the vest components. He also stated that the accelerated aging test is no longer part of the current IOTV requirements. However, the accelerated aging test is still required in the current COPD.

This is another example of the inadequate internal controls that existed in the IBA program at the time PM SEQ and RDECOMAC awarded these contracts. If, as the chief scientist maintains, the accelerated aging test was not applicable to the vest components, he should have informed the PM SEQ and RDECOMAC contracting officials to remove the requirement from the COPD and document the rationale in the program and contract files. As previously stated, PM SEQ revised the COPD eight times through March 13, 2007, which would have provided PM SEQ ample opportunity to remove the accelerated aging test requirement. PEO Soldier confirmed that the accelerated aging test is required and that the current COPD has been updated to reinforce the requirement to conduct the accelerated aging test. Because of the action that PEO Soldier has taken to address the accelerated aging test, we are not making a recommendation to address this issue.

*As previously stated, PM SEQ revised the COPD eight times through March 13, 2007, which would have provided PM SEQ ample opportunity to remove the accelerated aging test requirement.*

## Vest Components Accepted Before FAT Conducted

Contract 0014 was awarded on June 7, 2004, based on the 2002 PDM test for the Pathfinder ballistic package. The contract subsequently transitioned to the Pathfinder-S ballistic package, which had a PDM test completed on December 3, 2004. As discussed previously, the PDM test for the Pathfinder-S ballistic package met the FAT requirements, except for the accelerated aging test. However, prior to the completion of the 2004 PDM test for the Pathfinder-S ballistic package, PM SEQ accepted 70 lots consisting of 66,430 DAPs with a value of $18.9 million. Also, PM SEQ did not require LATs for those 70 lots. The chief scientist stated that a FAT for the Pathfinder-S was not necessary because the ballistic materials used to build the ballistic package were identical to the Pathfinder. The only difference between these two packages was the number of plies. Since PM SEQ did not require any ballistic testing to verify whether the additional plies would have any impact on the ballistic performance, we disagree that PM SEQ had reasonable assurance that a new FAT was not necessary.

PEO Soldier explained that the transition of the ballistic package actually occurred under a Defense Supply Center Philadelphia contract. PEO Soldier explained that, instead of requiring a new FAT, Defense Supply Center Philadelphia contracting officials instituted a double pull for LAT, which doubled the number of samples tested. Defense Supply Center Philadelphia contracting officials confirmed that the double pull was instituted as a Government verification testing. Although Defense Supply Center Philadelphia instituted the verification test through the double pull for LAT, it is not equivalent to a FAT because a FAT requires 19 tests while a LAT requires only 3 tests.

In conclusion, PM SEQ accepted the DAP without conducting a FAT or an equivalent test, which circumvented an important internal control needed to ensure that the items met the contract requirements. The PDM test for the Pathfinder-S ballistic package was especially important because PM SEQ did not require LAT for the first 70 lots of DAP. Therefore, PM SEQ had limited assurance that the Pathfinder-S would meet the FAT requirements during the first 70 lots of DAP.

## Lot Acceptance Tests Not Always Required

According to FAR Part 46, PM SEQ and RDECOMAC are responsible for performing all actions necessary to ensure that the vest components conformed to the contract requirements. Accordingly, LATs are performed to identify defects that may occur during the manufacturing process and ensure finished components consistently meet the contract requirements. LATs are generally not as extensive as FATs. For example, a 2 grain Right Circular Cylinder $V_{50}$ @ 0 degree dry test is only a FAT requirement.

The number of sample items selected for a LAT depends on the lot size and the component, such as OTV or DAP. The contracts specified the exact number of sample items to be selected for LAT. For example, for a lot size of 1,200 OTVs, 5 should be sampled and tested. Since each OTV had three panels (front left, front right, and back), a total of 15 panels are required to be selected and tested. For a lot size of 2,400 DAPs, 6 samples are required to be tested.

Of 900 lots for five contracts, PM SEQ required LATs for 560 lots, or about 62 percent of the total lots, consisting of 6,332 individual ballistic tests. The LAT results confirmed that PM SEQ passed the LAT and accepted the lots when appropriate. On the remaining 340 lots, PM SEQ did not require LATs. Table 4 is a breakdown of the LAT for each contract, including the number of lots accepted, the number of LATs performed and not performed, and the number of ballistic tests performed.

**Table 4. Summary of LATs**

| Contract Number (W91CB-) | Total Quantity Accepted | Total Lots Accepted | Accepted Lots With No LAT | Accepted Lots With LAT That Met the Test Requirements | Number of Ballistic Tests for Lots With LAT |
|---|---|---|---|---|---|
| 04-D-0014 (DAP) | 702,173 | 410 | 184 | 226 | 1,352 |
| 04-F-0126 (OTV) | 50,000 | 43 | 0 | 43 | 645 |
| 05-D-0003 (OTV) | 340,824 | 289 | 0 | 289 | 4,329 |
| 05-D-0003 (Yokes and Collars) | 117,560 | 134 | 134 | 0 | 0 |
| 05-P-0204 (Retrofit OTV) | 11,094 | 22 | 22 | 0 | 0 |
| 06-D-0024 (Retrofit OTV) | 3,000 | 2 | 0 | 2 | 6 |
| **Total** | **1,224,651** | **900** | **340** | **560** | **6,332** |

## *Lot Acceptance Test Not Performed for Smaller Vest Components*

For two contracts, PM SEQ did not require LATs for 318 lots, consisting of 170,417 DAPs and 117,560 yokes and collars. The two contracts and the value of the lots that did not have LATs are:

- Contract 0014—of 410 total lots for DAP, 184 lots valued at about $49 million.
- Contract 0003—of 134 lots of Yokes and Collars, all 134 lots valued at about $10 million.

The technical director explained that PM SEQ did not require LATs because the ballistic material was identical to the material that was previously accepted by the Government. Also, at the time, due to urgent and compelling requirements for all components of the IBA system, PM SEQ guidance was to require LATs for major end items such as the base vest component. Further, the technical director explained that shot spacing requirements could not be achieved on smaller vest components such as the DAP and the yoke assembly. Specifically, the COPD requires, at a minimum, spacing between shots shall be at least 2.5 inches for $V_{50}$ and 3.5 inches for $V_0$, so that sequential shots are not influenced by previous impact areas. The COPD also requires that no shots should be closer than 2.5 inches for $V_{50}$ and 3.0 inches for $V_0$ from any frame edge. The technical

director's explanation about the shot spacing requirements is consistent with the COPD. However, the purpose of the LAT is to ensure consistent performance and identify defects that may occur during the manufacturing process so that the risk of nonconforming components can be minimized. To correct this issue, PM SEQ has implemented in the current IOTV contracts that contractors are required to supply multiple-shoot packs of the components for LATs.

## *Lot Acceptance Test Not Performed for the Retrofit Outer Tactical Vests*

PM SEQ did not require LATs for contract 0204, retrofit OTVs. PM SEQ accepted 11,094 retrofit OTVs from 22 lots valued at about $2 million. PM SEQ program officials stated that LATs were not required because the contract did not require any new ballistic panels. According to the contract, Point Blank was required to take all actions necessary to retrofit/recondition and convert the vest components that had been returned and/or turned in for re-issue. Specifically, the contract required Point Blank to:

- inspect the ballistic panels;
- replace the outershells with the new Universal Camouflage pattern;
- provide a new yoke and collar assembly; and
- replace any component that may be missing with a new component.

Based on the required services, new ballistic panels may be provided; however, PM SEQ did not require LATs. Therefore, we could not verify whether the ballistic performance for the 11,094 retrofit OTVs met the contract requirements. Additionally, there was no evidence of Government surveillance of the services; see Finding B for a detailed discussion on the lack of product quality surveillance records. Since PM SEQ required LATs for a later retrofit OTV contract, they recognized the need to conduct LATs when appropriate for the retrofit efforts. As such, we are not making a recommendation to address this issue.

## *Support Contractor Performed Inherently Governmental Function*

Contractor personnel supporting PM SEQ approved LAT results for 207 lots, with a value of $138 million acquired under contract 0003. Although the LAT passed, the contractor should not have approved the test result without PM SEQ reviewing the results. The lack of Army review resulted in the contractor performing an inherently governmental function, which is a violation of FAR 2.101, "Definitions," and FAR subpart 7.5, "Inherently Governmental Functions."

The contract stated that "no lot shall be released from the Point Blank's plant prior to receipt of passing test reports that are approved by PM SEQ." Prior to Government acceptance of a lot, an assigned Government quality assurance representative (QAR) is required to select samples and send them to a designated laboratory for ballistic testing. When the laboratory completes the test, the results are sent to PM SEQ, the QAR, and Point Blank. PM SEQ reviews the test results to ensure compliance with applicable

testing standards and ballistic performance. If no deviations are found, PM SEQ sends an e-mail notifying the QAR and Point Blank that the lot met the testing requirements. If the LAT identified deviations, PM SEQ sends an e-mail to reject the lot, and PM SEQ, the QAR, and Point Blank take appropriate action to resolve the deviations, ensuring compliance with the contract terms and conditions.

As defined in FAR 2.101, an inherently governmental function includes "activities that require either the exercise of discretion in applying Government authority or making of value judgments in making decision for the Government." The FAR states that inherently governmental functions do not normally include gathering information for or providing advice, opinions, recommendations, or ideas to Government officials. Further, FAR 7.503(c)(12)(v) states that administering contracts, including accepting or rejecting contractor products, is an inherently governmental function. Accordingly, service contractor personnel can be used to perform the tests and report the test results to PM SEQ, but they cannot make a value judgment leading to the decision of acceptance or rejection of a lot.

For 207 lots, PM SEQ did not fulfill its responsibilities to review the test results and make the decision to accept or reject the lots; instead, it allowed contractor personnel to perform this inherently governmental function. Contractor personnel sent approval e-mails directly to the QAR without PM SEQ's analysis of their results; thus, PM SEQ substituted the contractor's judgment for its own on decisions to accept or reject the lots. PEO Soldier should ensure compliance with the FAR by not allowing contractor personnel to perform inherently governmental functions.

*For 207 lots, PM SEQ did not fulfill its responsibilities to review the test results and make the decision to accept or reject the lots; instead, it allowed contractor personnel to perform this inherently governmental function.*

PM SEQ issued new procedures for scoring of the ballistic test results that should prevent this condition from occurring in the future. Two PM SEQ personnel will independently score the test results. Then the chief scientist or the technical director—Army officials—will independently review and score the test. The chief scientist or the technical director will then compare his results against the other two scoring results and resolve any inconsistencies. They will issue a final determination to accept or reject or retest a lot.

## Management Corrective Actions

Since the award of these contracts, PEO Soldier has taken actions that should reduce the risk that the conditions identified in this report are repeated. In August 2009, PEO Soldier established an Executive Director for Quality, Process, and Compliance to verify and implement enhanced management controls, including developing decision tools for recording key information, events, and decisions. The Executive Director will also ensure that decisions are reviewed as changes occur such as new requirements, contractor performance, technological advances, and operational environment.

PEO Soldier has also implemented corrective action in response to prior audits by the DoD Inspector General, the Government Accountability Office (GAO), and the Army Audit Agency. The actions taken to improve the conditions include requiring a Government representative to be present for all FATs and LATs and instituting a three-tier scoring system with final approval by the chief scientist or the technical director.

In November 2009, the Secretary of the Army announced that the National Research Council will perform an independent assessment of ongoing body armor testing. The Secretary of the Army stated that "The purpose of the NRC [National Research Council] assessment is to ensure that the Army maintains the highest standards for testing processes and protocols, thus addressing concerns raised by the GAO about current testing procedures."

Further, RDECOMAC has made several improvements to the newly awarded IOTV contracts. Specifically, IOTV has been designated as a critical safety item requiring higher quality standards. Thus, the contracts state that contractors shall comply with International Organization for Standardization 9001/2008 quality standards. As of December 3, 2009, Point Blank has established a quality management system that is in compliance with the International Organization for Standardization 9001/2008. In addition, the contracts contain a more strict quality assurance requirement for LATs. For instance, if the contractor fails two consecutive LATs or three LATs in 100, the contractor will immediately cease production and a review will be performed to determine if production of the approved FAT package may resume or a new FAT will be conducted.

## Summary

The PM SEQ could provide only limited assurance that the vest components acquired through the five contracts meet the contract requirements. Specifically, PM SEQ:

- lowered the requirements in the COPD after a PDM test failed to achieve the minimum velocity requirements on three tests,
- did not comply with the accelerated aging test requirement,
- did not require LATs for 340 lots,
- allowed contractors to perform an inherently governmental function, and
- did not justify key decisions in writing and maintain supporting documents so that decisions can be tracked.

Since PM SEQ and RDECOMAC awarded the five contracts, they have implemented numerous changes that should minimize the risk of these conditions recurring. The changes included establishing an Executive Director for Quality, Process, and Compliance and initiating a detailed review of ballistic test results. However, the conditions identified on these five contracts reinforce the need for PM SEQ to fully document decisions that impact the IBA Program.

# Recommendations, Management Comments, and Our Response

**A. We recommend that the Commanding General, Army Program Executive Office Soldier, institute a policy that requires all decisions to waive the first article and lot acceptance tests be approved in writing and any other decisions that may impact the Interceptor Body Armor Program must be justified in writing and provided to the contracting office along with adequate documentation to support the decision.**

## *Army Program Executive Office Soldier Comments*

The Assistant Deputy for Acquisition and Systems Management, responding for PEO Soldier agreed. The Assistant Deputy stated that PEO Soldier will issue a policy letter that requires decisions to waive the FAT and LAT be approved by the contracting office in writing. Further, the Assistant Deputy stated that PEO Soldier will provide the contracting office written justification, and adequate documentation, to support the decision to waive the FAT and/or LAT and any other decision that may impact the Interceptor Body Armor. The Assistant Deputy stated that the policy letter will be issued by November 30, 2010. On November 3, 2010, PEO Soldier issued policy letter, "Policy #11-001, Program Executive Office (PEO) Policy for First Article Test (FAT) and Lot Acceptance Test (LAT) Waiver," implementing the recommendation.

## *Our Response*

The Assistant Deputy's comments are responsive to the recommendation. Therefore, we do not require additional comments.

# Management Comments on the Internal Controls and Our Response

## *Army Program Executive Office Soldier Comments*

The Assistant Deputy for Acquisition and Systems Management, responding for PEO Soldier, stated that PEO Soldier agreed on the internal control weaknesses that (1) the Army adjusted the minimum velocity requirements from COPD 00-02 to COPD 00-02A, (2) the LAT was waived for items that previously met the First Article ballistic standards, and (3) Army support contractors approved the LAT results.

Specifically, the Assistant Deputy stated that the COPD change was necessary because the V50 ballistic requirements established in COPD 00-02 were unobtainable at the then-current state of technology. The Assistant Deputy stated that after several successful OTV procurements using the May 14, 1998, OTV purchase description, U.S. Army procurement officials increased the V50 fragmentation requirements with COPD 00-02, issued January 30, 2002, in an attempt to increase the OTV fragmentation performance baseline for future procurements. However, the Assistant Deputy stated that testing revealed that the OTV fragmentation requirements in COPD 00-02 were not consistently attainable at the current OTV weight requirement. The Assistant Deputy

further stated that to avoid increasing the weight of the OTV and to reduce the risk of fielding delays and lot rejections, PM SEQ modified the testing requirements during the 2002 Defense Supply Center Philadelphia source selection conducted under solicitation SPO100-02-R-4025. The Assistant Deputy stated that the net result of the change from COPD 00-02 to COPD 00-02A was to restore the OTV fragmentation performance baseline to the values in the prior May 14, 1998, OTV purchase description. In addition, the Assistant Deputy stated that COPD 00-02A was issued during source selection as an amendment to the Defense Supply Center Philadelphia solicitation SPO100-02-R-4025 prior to contract award. The Assistant Deputy stated that this rationale was documented in further detail and provided to the DoD IG in a December 8, 2009, Memorandum for the Record, "Outer Tactical Vest V50 minimum Velocities in Purchase Description COPD 00-02." The Assistant Deputy also stated that, in order to ensure that future requirement changes are properly documented, the Army will comply with the DoD Instruction 5010.40, "Managers' Internal Control (MIC) Program Procedures," January 4, 2006.

The Assistant Deputy stated that PEO Soldier will issue a policy letter ensuring that the contracting officer approves any decision in writing to waive FAT and LAT. See management comments on Recommendation A for details.

The Assistant Deputy also stated that PEO Soldier agreed that the Army support contractors approved the LAT results, an inherently governmental function. The Assistant Deputy stated that procedural changes will prevent support contractors from performing inherently governmental functions.

## *Our Response*

The Assistant Deputy's comments are responsive to the internal control weaknesses. Therefore, we do not require additional comments.

# Finding B. Improvements Needed for Product Quality Surveillance for the Vest Components

The DCMA Orlando sample selection process did not result in a proper statistically representative sample for the LAT. In addition, QAR personnel did not always document or retain the records needed to substantiate that they had performed quality inspections of the vest components. Specifically:

- QARs did not use a proper statistical random sampling methodology to select the sample for the 560 LATs on five contracts. This occurred because the QARs incorrectly believed that pointing and grabbing components from different stacks was random and provided every component an equal chance for selection.

- Of the 560 LATs, QARs did not sign DD Forms 1222, "Request for and Result of Tests," which document that the QARs selected and inspected the components for LATs for 7 lots consisting of 8,400 OTVs. This occurred because DCMA Orlando officials incorrectly believed that the QARs were not required to sign the DD Form 1222.

- DCMA Orlando could not provide product inspection records for 693 lots (75 percent) of the 923 total lots for six contracts and inspection records of the key manufacturing processes. This occurred because the records were destroyed by Hurricane Wilma in 2005 or were maintained for only 2 years.

The impact of using a sampling methodology that does not result in a statistically representative sample is that the LAT results cannot be relied upon to project whether an entire lot meets the contract requirements. The QAR's signature on the DD Form 1222 is needed to maintain accountability and the integrity of the samples selected for the LAT. Finally, the inspection records need to be retained in order to fully document that the inspection process was completed prior to accepting the items.

## Quality Assurance Regulations

FAR Part 46, "Quality Assurance," prescribes policies and procedures for contract quality assurance. This includes inspection prior to acceptance in order to protect the Government's interest and other measures associated with quality requirements for products or services acquired under Government contract. Defense Federal Acquisition Regulation Supplement Part 246, "Quality Assurance," requires DoD Departments and agencies to conduct quality audits to ensure that the products and services meet contractual requirements.

## DCMA Quality Assurance Process

As a DoD Component, DCMA provides a full spectrum of contract services, including product and quality assurance services to ensure that products are delivered on time, at projected cost, and meet all performance requirements. DoD Components generally delegate these responsibilities to DCMA in writing through the contract. According to the contracts, DCMA Orlando was responsible for inspecting the vest components at the vendors' plants and ensuring that no lot would be released prior to receiving the Army's approval of ballistic test results. On November 21, 2006, the Army Product Manager Soldier Survivability, a subdivision of PM SEQ, PEO Soldier, issued a Quality Assurance Letter of Instruction (QALI) providing technical guidance for DCMA Orlando's surveillance efforts to achieve zero defects of the vest components and reduce ballistic test failures. The QALI specified that DCMA Orlando was responsible for:

- selecting samples for LATs based on the lot size and sample size tables,
- conducting product assurance surveillance to the same degree as if the components were identified as critical safety items, and
- performing on-site surveillance of all specified key manufacturing processes.

DCMA Orlando incorporated the Army instructions in the surveillance plan for Point Blank. The surveillance plan listed the key manufacturing processes to be inspected and frequency of its inspection.

## Lot Acceptance Test Sample Selection Process

The LAT sample selection process began with Point Blank personnel notifying DCMA QARs when a lot of ballistic panels was ready for a LAT. An assigned QAR reported to the Point Blank plant and selected samples. Depending on the lot size, the QAR would select three, five, or eight samples; see Finding A, "Lot Acceptance Tests Not Always Required" section for details. Because a vest had more than one ballistic panel, the QAR ensured all applicable panels were pulled for the same serial numbers or samples by placing the panels on a table and comparing the serial numbers. Figure 2 is an example of a ballistic panel lot ready for sample selection.

**Figure 2. Ballistic Panels Ready for Sample Selection**

The QAR selected the samples and recorded the serial numbers on DD Form 1222. The QAR then signed the form and sent it, with the samples, to the applicable laboratory for the LAT. Upon completion of the LAT, the laboratory sent the test results to PM SEQ, DCMA Orlando, and Point Blank.

## Inappropriate Sampling Methodology Used for Lot Acceptance Test

DCMA Orlando QARs did not use an appropriate sampling methodology to select the samples for the 560 LATs on five[2] contracts for the vest components. The sampling methodology that the QARs used did not ensure that a representative sample was selected for each LAT. This occurred because the QAR believed that pointing and grabbing sample components from different stacks was random and would provide every component the same opportunity for selection. During a site visit in June 2009, we interviewed five QARs responsible for overseeing the Point Blank contracts to gain an understanding of the sampling methodology used to select representative components for the LAT. All five QARs stated that they sampled the vest components by pointing and grabbing them from different stacks until the required number of samples was selected.

[2] The sixth contract, W91CBR-05-F-0072 was to convert the current camouflage pattern to the Universal Camouflage pattern of all the OTVs and components; therefore, it did not require any FAT or LAT ballistic testing.

*The sampling methodology that DCMA Orlando QARs used did not provide a statistically derived representative sample. Without a representative sample, the LAT results cannot be relied upon to project whether a lot met the contract requirements.*

Our observation[3] of the process confirmed that the QAR was pointing and pulling the components from the different stacks.

A QAR explained that the process was unpredictable because Point Blank personnel did not know which samples would be selected. Although his explanation may have some logic, his sampling methodology did not ensure that a representative sample would be selected for the LAT. The sampling methodology the QARs used was subject to potential biases—deliberate or unconscious in the sample selection. Military Standard 1916, "DoD Preferred Methods for Acceptance of Product," April 1, 1996, states that "Units of product drawn from a lot for sample shall be selected at random from the lot without regard to their quality. Random sampling requires that each unit in the lot, batch, or production interval has the same probability of being selected for the sample." Although Military Standard 1916 was not intended for use with destructive testing, the same principles should be applied to the vest components. When we observed the QARs' actual sampling process for the vest components, not every item had an equal chance of being selected. As shown in Figure 2, the ballistic panels were stacked on both sides of a long table. The QAR pulled samples from only one side of the table, although he explained that he swaps sides all the time.

The purpose of the LAT is to identify defects that may occur during the manufacturing process and ensure finished components are consistently meeting the contract requirements. The LAT relies on a statistically derived process that results in the selection and testing of a representative sample to ensure that the product meets the contract requirements. The representative sample is selected using a specific methodology, but the outcome is not predictable or biased. The sampling methodology that DCMA Orlando QARs used did not provide a proper statistically derived representative sample. In total this would have impacted the sample selection for the 560 lots on five contracts that required LATs. Without a statistically representative sample, the LAT results cannot be relied upon to project whether a lot met the contract requirements. As such, PEO Soldier should perform a risk assessment to determine whether recall of any or all of the 560 lots is necessary. In addition, DCMA Orlando should develop a specific and defined methodology for selecting the samples for LAT of the vest components.

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[3] Our observation was conducted for contract W91CRB-08-D-0045 (contract 0045), which was not within the scope of the audit. RDECOMAC awarded contract 0045 to Federal Prison Industries, Incorporated, for the vest components, and Point Blank was a subcontractor, providing ballistic panels. DCMA Orlando was also responsible for selecting and inspecting components for the LAT, as well as accepting lots once they received approval from PM SEQ. Although contract 0045 was not within the scope of the audit, the sample selection process by DCMA QARs was similar to the five contracts under review that had LATs.

DCMA officials agreed that by definition a truly random sampling did not occur. DCMA officials stated five different QARs were involved with selecting samples in what they thought was a random fashion. DCMA officials stated that although the impact of using a sampling methodology that does not result in a statistically representative sample diminishes the confidence level that the LAT results are representative of the entire lot, the overall negative effect is minimized by the variation in QARs. DCMA official acknowledged that instead of being at a 95 or 99 percent confidence level that the sample is representative, it may be slightly lower due to the incorrect methodology employed. Consequently, DCMA officials provided a link to a random number generator tool for the DCMA Orlando personnel to use when selecting random samples. DCMA officials stated that they are attempting to locate or develop a more permanent random number generator for use by the entire DCMA Quality Assurance workforce. We commend DCMA's responsiveness and recommend that DCMA should ensure that those responsible for selecting samples know how to use the random number generator tool.

## QAR Did Not Always Sign Form 1222, "Request For and Results of Tests"

Of the 560 lots requiring LATs, the QARs did not sign DD Form 1222 for 7 lots consisting of 8,400 OTVs. QAR personnel completed DD Form 1222 when inspecting and selecting the components for the LAT. In signing DD Form 1222, the QAR verifies the accuracy of the information on the form and certifies that representative components were selected by a Government official. According to DCMA Orlando officials, the QARs were not required to sign the form; rather it was a personal preference. By not requiring the QARs to sign to the form, DCMA Orlando improperly deviated from the instructions for completing DD Form 1222. Signing the form is an important internal control that provides accountability for product quality assurance as well as documentation that the samples selected for the LAT have been accomplished by a Government QAR.

Subsequently, DCMA officials explained that when DD Forms 1222 are prescribed for use by the procuring activity, they will be completed appropriately to include the signing or stamping in block 15 only. DCMA officials also stated that the ballistic testing should not be performed if this block is not signed or stamped by the Government QAR. Further, DCMA officials stated the DD Form 1222 signature block in section B is to acknowledge the conduct and result of testing and, therefore, would not be signed by DCMA. We commend DCMA for implementing and clarifying the requirement to sign DD Form 1222; therefore, we will not provide any recommendations on this issue.

## Incomplete Product Quality Surveillance Records

DCMA Orlando could not provide records supporting that the QARs performed the required product and key manufacturing process inspections. DCMA Orlando stated that the inspection records were lost during Hurricane Wilma in 2005 or were maintained for only 2 years. As a result, we could not evaluate whether the required product inspections for about 693 lots (75 percent) of the 923 total lots for six contracts were performed in accordance with the contract requirements. In addition, we were unable to verify the

inspection or oversight of the contractor's key manufacturing processes since May 2005. Without those records, we had no basis to determine whether any defects were detected and corrected prior to Government acceptance.

## *Incomplete Final Inspection Records for the Vest Components*

Once the QARs received the PM SEQ's notification that a lot had passed the ballistic test through the LAT, they would begin the final inspection, also referred to as the product audit. The surveillance plan describes the product audit as a process of measuring, examining, and comparing end items with the contract requirements. Of the 923 lots of vest components accepted under the six contracts, DCMA Orlando provided inspection records for 230 lots (see Table 5).

According to DCMA Orlando, QAR personnel inspection records for the remaining 693 lots were lost during Hurricane Wilma in 2005 or were maintained for only 2 years. Specifically, DCMA stated that inspection records were retained on a CD that was no longer available. Also, a quality assurance team leader stated that DCMA Orlando followed Defense Logistics Agency Instruction 5015.1, "Defense Logistics Agency Records Management Procedures and Records Schedule," March 1, 2000, for record retention, which was only 2 years. However, the Defense Logistics Agency Instruction was superseded on November 15, 2002, before the selected contracts were awarded.

**Table 5. Summary of Available Component Inspection Records**

| Type of Inspections | Year Performed | Number of Lots |
|---|---|---|
| Final inspection or product audit | 2005* | 99 |
| Final assembly inspection | 2007 | 92 |
| Dimensional inspection | 2005 | 30 |
| Final inspection and dimensional inspection | 2005 | 9 |
| | **Total** | **230** |

*Of the 99 lots that had a final inspection, one was inspected in 2006 and one was inspected in 2007.

In addition, the team leader's statement concerning the 2-year policy is inconsistent with FAR requirements. FAR 46.104(c)(2) requires retention of records that reflect the decisions regarding the acceptability of the products, the processes, and the requirements, as well as action to correct defects. Further, FAR 4.805, "Storage, Handling, and Disposal of Contract Files," and DCMA Instructions for Product Assurance require those records to be retained for 6 years and 3 months. Without the inspection records, we could not evaluate whether the QARs performed the required inspections to ensure that the vest components met the contract requirements.

For the 230 lots that had inspection records, we could not evaluate the inspections because the information was not consistently recorded and relevant information was incorrectly scanned. In order to select an appropriate sample size for product inspections,

the QARs considered the lot size in association with the acceptance quality limit (AQL)[4] of a sampling plan. DCMA Orlando used the zero-based acceptance sampling plan that states, for example, if a lot size is 1,200 and the AQL is 6.50 percent, the QARs will select 11 samples for inspections. However, the QARs did not always record the AQL information on the inspection reports. For contract 0003, the QARs either recorded the AQL as 4.00 percent or 6.50 percent or left it blank. Because the surveillance plan did not specify the AQL information, we requested an explanation from DCMA Orlando officials as to how the different AQLs were determined. DCMA Orlando officials stated the QARs can vary the AQL based on a long history of acceptable inspections. DCMA Orlando officials' explanations were reasonable, but the decision to vary the AQL level should have been documented, and the new AQL level should have been recorded on the inspection reports. Because relevant information was missing, we could not complete our review of the product inspections.

Overall, DCMA Orlando should comply with the FAR and its record retention guidance in order to provide a complete history of its actions or services for 6 years and 3 months after the contract completion. Also, DCMA Orlando should require consistent and detailed recording of its product inspections concerning the vest components.

## *Key Manufacturing Processes Not Included in the Surveillance Plan*

DCMA Atlanta Standard Operating Procedure No. 03-05, "Product Assurance," revised August 18, 2006, provides instructions for product assurance personnel regarding (1) determining customer outcomes; (2) identifying critical safety items; (3) identifying and assessing risks to customer outcomes; and (4) developing, executing, and documenting results of the Product Assurance Surveillance Strategy. In addition, the DCMA Orlando Supplier Quality Assurance Master Risk Handling Plan, revised January 30, 2004, establishes surveillance methodologies and planning requirements that all QARs should follow. One of the planning requirements is that QARs should use the contract and the contractor's devised production, manufacturing and/or quality assurance plans, drawings, and specifications to identify key processes/characteristics. Once key processes are identified, QARs should assign a risk level for each key process and devise surveillance strategies for handling the assigned risk level. For example, if a key process was rated as moderate and the strategy responding to the moderate risk level was to inspect the key process once every quarter, QARs would document the assessment in a surveillance plan. Table 6 lists the key processes and points of inspection that DCMA Orlando personnel identified in the surveillance plan for Point Blank.

[4] The AQL of a sampling plan is a measure of the level of quality routinely accepted by that sampling plan. It is defined as the percent defective that the sampling plan will accept.

**Table 6. Key Processes and Points of Inspection**

| Key Processes | Point of Inspection |
|---|---|
| Calibration | Semi-Annual |
| Purchase Order Review | Quarterly |
| Receiving Inspection | Quarterly |
| Ballistic Ply Count | Quarterly |
| Stitching Conformity | Quarterly |
| Weight Verification | Quarterly |
| Packaging, Packing, and Marking | Each Shipment |
| Ballistic Panel Inspection | Each Shipment |
| Final Assembly | Each Shipment |
| Review of Ballistic Test Results | Each Shipment |

DCMA Orlando personnel did not incorporate into the surveillance plan two key processes that the PM SEQ deemed important for the vest components in its November 2006 QALI. The two key processes were Density Verification and Product Traceability. DCMA Orlando explained that these were covered under the product audits as characteristics. Because the majority of the inspection records were no longer available, we could not verify whether the QARs inspected the two key processes. DCMA Orlando officials should revise its surveillance plan to comply with the PM SEQ's instructions regarding the key processes. If there is a deviation from the instructions, DCMA Orlando officials should consult PM SEQ and document its justification. Further, DCMA Orlando officials should comply with the FAR and the DCMA record retention guidance in order to provide a complete history of its actions or services and effectively support whether the vest components meet the quality standards detailed in the contracts.

DCMA stated that records pertaining to acceptance decisions are to be maintained for 6 years and 3 months. There are several DCMA instructions stating this requirement, including the Product Assurance Instruction. The DCMA Orlando team leader has assured that each QAR is aware of this requirement. Further, DCMA stated that the Orlando team now uses a central database for the capture and storage of surveillance records. Therefore, we will not provide any recommendations regarding record retention.

## Summary

DCMA Orlando's sample selection methodology did not result in a proper statistically representative sample for LAT. In addition, QAR personnel did not always document or retain the records needed to substantiate that they had performed the quality inspections of the vest components. In response to the audit, DCMA has directed the QARs to use a random number generator tool when selecting random samples for the LAT. DCMA has clarified its policy that the QARs should sign the DD Forms 1222 and maintain surveillance records for 6 years and 3 months. DCMA Orlando's product surveillance over the vest components can be further improved by ensuring (1) the QARs are trained on how to use the random number generator tool, (2) the surveillance plan contains the

approved surveillance strategies, and (3) the inspection records contain sufficient and appropriate information. Appendix C provides a summary of the product quality surveillance process and the weaknesses identified.

# Recommendations, Management Comments, and Our Response

**B.1. We recommend that the Commanding General, Army Program Executive Office Soldier, perform a risk assessment to determine whether a recall of any or all of the 560 lots is needed as a result of the Defense Contract Management Agency Orlando sampling process and based on the results of the risk assessment, take appropriate action.**

## *Army Program Executive Office Soldier Comments*

The Assistant Deputy for Acquisition and Systems Management, responding for PEO Soldier, agreed. The Assistant Deputy stated that PEO Soldier will perform a risk assessment to determine whether a recall of any or all of the 560 lots is needed as a result of the Defense Contract Management Agency Orlando sampling process. Further, the Assistant Deputy stated the PEO Soldier will take appropriate actions based on the results of the risk assessment, which is expected to be completed by April 2011.

## *Our Response*

The Assistant Deputy's comments are responsive to the recommendation. Therefore, we do not require additional comments.

**B.2. We recommend that the Director, Defense Contract Management Agency Orlando, improve the product quality assurance surveillance of Point Blank Body Armor, Inc. by:**

**a. Providing training to Quality Assurance Representatives on how to use the random number generator tool for selection of the vest components for lot acceptance tests.**

## *Defense Contract Management Agency Comments*

The Chief Operations Officer for Operations Directorate, responding for DCMA, agreed. The Chief Operations Officer stated that the random number generator methodology has been implemented by all DCMA QARs across the prime body armor contractor enterprise. The Chief Operations Officer also stated that QARs have been instructed in the appropriate use of statistically random sampling methodologies and tools and that DCMA provided the sampling training to all DCMA Body Armor QARs on July 14, 2010. Further, the Chief Operations Officer stated that DCMA management will regularly verify compliance via on-site Program Integrator observation and semi-annual team leader reviews with individual QARs. The Chief Operations Officer stated that a team leader completed a follow-up audit in August 2010 and a joint Region/Operations Directorate site review was also completed in September 2010. The Chief Operations Officer stated that Body Armor quality surveillance will continue to be reviewed via the

Management Internal Control Review process for 2011 and the out-years. Finally, the Chief Operations Officers stated that based on these assessments and continuing reviews, DCMA believes the proper sampling is and will continue to occur at all Contract Management Office locations where body armor is being produced.

## *Our Response*

DCMA comments are responsive to the recommendation. Therefore, we do not require additional comments.

**b. Revising the surveillance plan to include the Program Manager for Soldier Equipment's instructions regarding key processes. If a deviation occurs, Defense Contract Management Agency Orlando personnel should consult with the Program Manager for Soldier Equipment and document its justification.**

## *Defense Contract Management Agency Comments*

The Chief Operations Officer for Operations Directorate, responding for DCMA, agreed. The Chief Operations Officer stated that the surveillance plan has been updated to include the QALI and Program Manager's instructions on key processes. Further, the Chief Operations Officer stated that deviations will be justified in writing and coordinated with the Program Manager. Specifically, the Chief Operations Officer stated that the QAR surveillance plan for Point Blank Body Armor dated September 16, 2010 was revised to specify all customer key process instructions. The Chief Operations Officer stated that the current Surveillance Plan at Protective Products Enterprises, another body armor manufacturer, incorporates all customer key process instructions as well. In addition, the Chief Operations Officer stated that the Contract Management Office management regularly validates continued compliance via on-site program integrator observation, semi-annual team leader reviews with individual QARs, and the Management Internal Control Review for 2011 and the out-years. Furthermore, the Chief Operations Officer stated the QAR workbooks will have linkage to a data analysis module which will provide graphical depictions of the results of key process and final inspections. The Chief Operations Officer stated that the QARs will use this information to make changes to his/her surveillance approach and to communicate with the customer for possible changes to QALI instructions.

## *Our Response*

DCMA comments are responsive to the recommendation. Therefore, we do not require additional comments.

**c. Issuing a policy requiring the quality assurance representatives to consistently complete the inspection reports and ensure the reports contain sufficient and appropriate information.**

## *Defense Contract Management Agency Comments*

The Chief Operations Officer for Operations Directorate, responding for DCMA, partially agreed. The Chief Operations Officer stated that DCMA already has a policy in effect—it is DCMA Instruction 226-14, "Product Examination – QA." However, the Chief Operations Officer stated that enforcement and verification of compliance with the policy needs to occur. The Chief Operations Officer explained that, to ensure compliance, the QARs are now logging all inspection activities in an automated database for body armor products. The Chief Operations Officer stated that this database, titled QAR Body Armor Workbook, contains links to the contract, wide-area workflow records, QALI, surveillance plan, DD forms 1711 and 1222s, sample selected serial numbers for lot inspections and testing, and customer lot testing audit notifications. Further, the Chief Operations Officer stated that DCMA is evaluating the QAR Body Armor Workbook tool for DCMA-wide implementation. The Chief Operations Officer stated that DCMA Eastern Region Quality Assurance will verify the corrective action implemented by DCMA Orlando during a follow-up visit from November 29 to December 1, 2010. The Chief Operations Officer stated that the Body Armor Workbook tool has been evaluated and will be deployed to all applicable Contract Management Offices by December 13, 2010. The Chief Operations Officer stated that the DCMA program integrator will periodically review the workbook and the team leader will conduct the semi-annual review with individual QARs. Finally, the Chief Operations Officer stated that DCMA will conduct the Management Internal Control Review for 2011 and the out-years.

## *Our Response*

Although DCMA only partially agreed, we are satisfied that the corrective actions presented by the Chief Operations Officer meet the intent of the recommendation. Therefore, we do not require additional comments.

# Appendix A. Scope and Methodology

We conducted this performance audit from March 2009 through September 2010 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 conducted this audit at the following DoD and contractor sites:

- Office of the Director, Operational Test and Evaluation, Pentagon, Washington, D.C.;
- U.S. Army Research, Development and Engineering Command Acquisition Center, Aberdeen Proving Ground, Maryland;
- U.S. Army Program Executive Office Soldier, Fort Belvoir and Haymarket, Virginia;
- Defense Contract Management Agency Orlando, Hollywood, Florida; and
- Point Blank Body Armor, Inc., Pompano Beach, Florida.

We interviewed contracting officials at RDECOMAC, program office personnel at PEO Soldier, QARs at DCMA Orlando, and key personnel at Point Blank. We also interviewed a Live Fire Test and Evaluation staff specialist at the Office of the Director, Operational Test and Evaluation. To eliminate duplicate efforts and obtain additional evidence, we coordinated with personnel from GAO and the Army Audit Agency.

We collected and reviewed documents obtained for the six contracts from RDECOMAC, PM SEQ, DCMA, and Point Blank; see appendix D for an overview on the six contracts. We obtained additional information from the Defense Supply Center Philadelphia. We evaluated the internal controls over the product surveillance for the vest components to determine whether the controls in effect were adequate.

We obtained two PDMs/FATs packages, containing 65 ballistic tests; and 560 LATs, containing 6,332 ballistic tests from PM SEQ. We also obtained an understanding of how PM SEQ personnel evaluated the ballistic test data. We analyzed the ballistic test data to determine whether the PDMs/FATs and LATs met the contract requirements. When analyzing the test data, we compared the test results to the referenced COPD. If a specific COPD was not referenced, we used the COPD that was in effect when the test occurred.

We conducted a walk-through of Point Blank's manufacturing process for the vest components and observed a DCMA QAR perform sampling of ballistic panels for a LAT for contract W91CRB-08-D-0045. We analyzed DCMA's inspection records for manufacturing key processes and product quality surveillance for 230 lots. We reviewed

the contract files at RDECOMAC. We reviewed the FAR, the Defense Federal Acquisition Regulation Supplement, contract documents, purchase descriptions, DCMA surveillance plans, standard operating procedures, and quality assurance procedures.

## Use of Computer-Processed Data

We used computer-processed data to answer our objectives and perform this audit. We relied on computer-processed data such as ballistic test data prepared by independent National Institute of Justice laboratories and provided by PEO Soldier. In addition, we used electronic files relevant to the vest component contracts from the Electronic Document Access system; Defense Supply Center Philadelphia; the Office of the Director, Operational Test and Evaluation; RDECOMAC; PEO Soldier; DCMA; and Point Blank. We determined that the information system controls are not significant to the audit objectives and that it was not necessary to evaluate the effectiveness of information systems controls in order to obtain sufficient, appropriate evidence. In addition, there is sufficient supporting and corroborating information from non-computer-processed data to support findings and conclusions.

## Use of Technical Assistance

The DoD IG Quantitative Methods and Analysis Division assisted with the audit. The Technical Director, Quantitative Methods and Analysis Division assisted us in reviewing the quality assurance process used for the vest component contracts at DCMA Orlando. In addition, he advised us on the validity of the DCMA sampling process used for the LATs at Point Blank. In addition, we consulted with three engineers from the DoD IG Technical Assessment Directorate on the transition of the ballistic package from the Pathfinder to the Pathfinder-S. The engineers provided their opinions based on review of ballistic test data, required product specifications, and contract documents.

## Prior Coverage

This audit is the third in a series of reports in response to a request from Congresswoman Slaughter and addresses the six vest component contracts. The first report determined whether the Enhanced Small Arms Protective Inserts first article testing criteria for Army contract W91CRB-04-D- 0040 was in accordance with the contract. The second in the series focused on the contractors' backgrounds and qualifications. The fourth in the series will focus on the ballistic testing of the IBA inserts for the remaining seven contracts.

During the last 5 years, the GAO, the DoD IG, and the Army have issued eight reports related to the IBA program. Unrestricted GAO reports can be accessed 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-10-119, "Independent Expert Assessment of Army Body Armor Test Results and Procedures Needed Before Fielding," October 16, 2009

GAO Report No. GAO-07-662R, "Defense Logistics: Army and Marine Corps's Individual Body Armor System Issues," April 26, 2007

GAO Report No. GAO-05-275, "Actions Needed to Improve the Availability of Critical Items during Current and Future Operations," April 8, 2005

## *DoD IG*

DoD IG Report No. D-2010-027, "Army's Management of the Operations and Support Phase of the Acquisition Process for Body Armor," December 8, 2009

DoD IG Report No. D-2009-047, "DOD Testing Requirements for Body Armor," January 29, 2009

DoD IG Report No. D-2008-067, "DoD Procurement Policy for Body Armor," March 31, 2008

## *Army*

Army Audit Agency Report No. A-2009-0130-FFD, "Body Armor Requirements," June 8, 2009

Army Audit Agency Report No. A-2009-0086-ALA, "Body Armor Testing: Program Executive Office, Soldier," March 30, 2009

# Appendix B. Request From Congresswoman Slaughter

COMMITTEE ON RULES
CHAIRWOMAN
WASHINGTON OFFICE:
2469 RAYBURN BUILDING
WASHINGTON, D.C. 20515-3221
(202) 225-3615

LOUISE M. SLAUGHTER
CONGRESS OF THE UNITED STATES
28TH DISTRICT, NEW YORK

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465 MAIN STREET, SUITE 105
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1910 PINE AVENUE
NIAGARA FALLS, NY 14301
(716) 282-1274
WEBSITE: http://www.louise.house.gov

June 23, 2008

The Honorable Claude M. Kicklighter
Inspector General
U.S. Department of Defense
400 Army Navy Drive
Suite 1000
Arlington, VA 22202

Dear Mr. Kicklighter:

Thank you for taking the time to come in on Friday, June 20th and give me an update on your investigations into the Army's body armor procurement strategies. I am pleased to hear that you are expanding your investigation to look into the body armor sustainability, as well as into the deficiencies in contracts that were investigated in your March 31st, 2008 report.

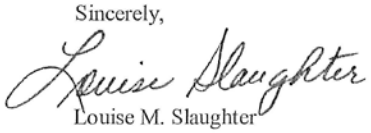
I want to follow up with a couple of requests that I made during our meeting. I asked that you further look into the contracts that were identified in your report as not having documentation that support proper first article testing. You indicated that your team would be able to conduct this investigation and I eagerly await your findings.

In addition, I would like information on how those contracts were issued. Specifically, I request that you look into the background of the contracting firms, the criteria for awarding these contracts and the contractor's qualifications for being awarded these contracts, and whether or not they have any inappropriate connections to Army contracting officials. I ask that you report on any instances where a contract was inappropriately awarded and the Army's rationale for such an award. I also ask that you report on whether the contractors demonstrated an ability to successfully produce quality body armor for our soldiers in the field. I would also like this information for the criteria, qualifications, and any inappropriate connections for contracts awarded to any private testing facilities as well.

Thank you for taking the time to address these questions as well as those asked in my June 20th letter to you. As I have said before, it is critical that these questions are fully answered so that our men and women in the battlefield can be confident in their equipment to save their lives. I look forward to seeing your response to my original letter by Friday, June 27th 2008. If you have any questions, please feel free to contact me or [redacted]

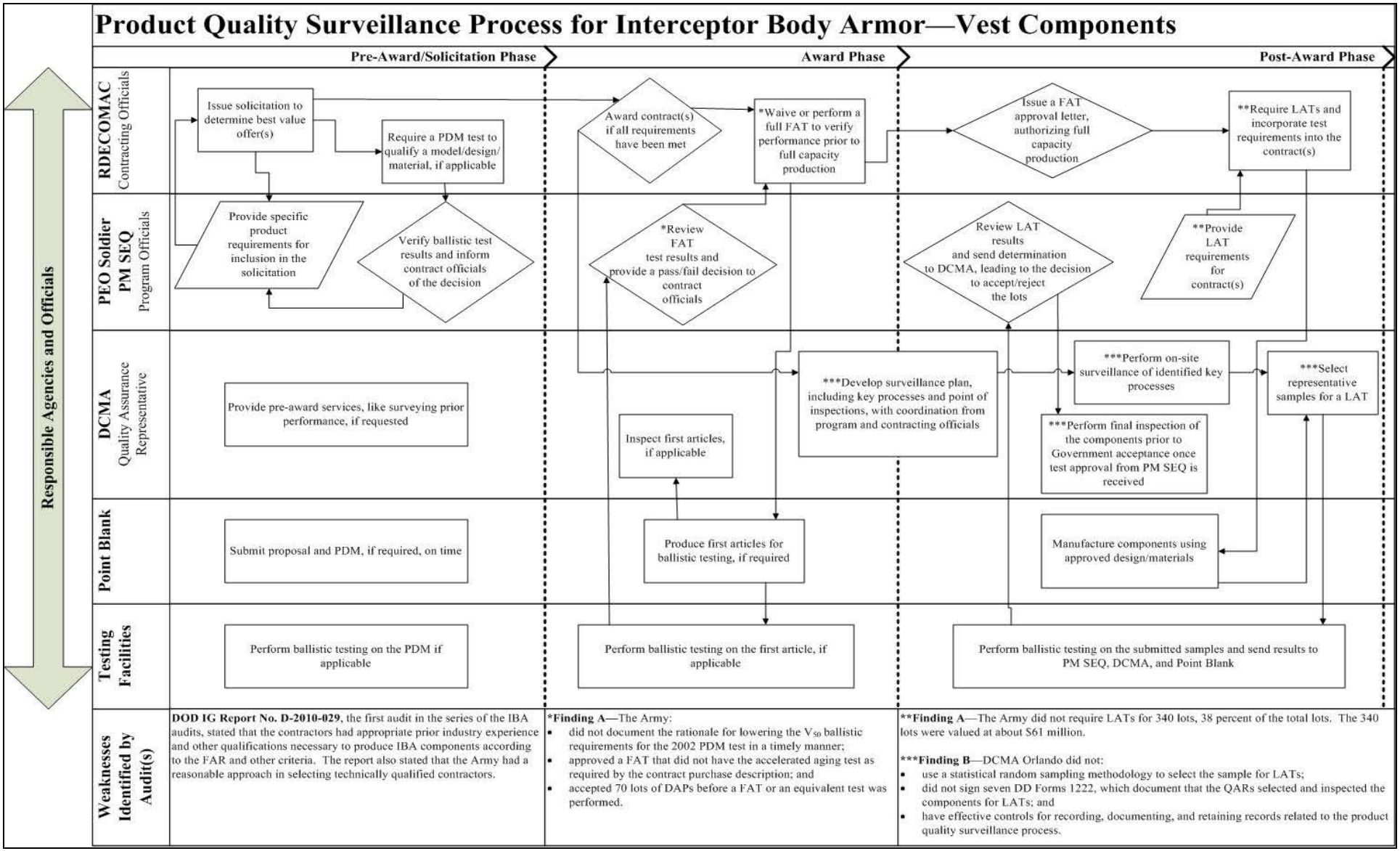
PRINTED ON RECYCLED PAPER

Sincerely,



Louise M. Slaughter
Member of Congress

# Appendix C. Summary of the Product Quality Surveillance Process and Weaknesses



# Appendix D. Overview of Six Contracts

The Army awarded the selected six contracts to Point Blank for five different vest components or services. A complete OTV subsystem consists of a base vest and components such as yoke and collar assembly, a throat protector assembly, and a groin protector assembly. In March 2004, DAPs were added as the first OTV accessories. Also, the OTV subsystem consists of an outershell, ballistic panels, and an outershell inner lining. The ballistic panels must be able to insert easily into the OTV outershell and applicable components. The Army uniform patterns for its OTV outershells were Woodland, Desert Camouflage, or Universal Camouflage. Below is a table providing contract details followed by specific product descriptions.

**Table. Overview of Contracts for Vest Components**

| Contract No. (W91CRB-) | Award Date | Completion Date | Actual Contract Value | Product | Quantity Purchased |
|---|---|---|---|---|---|
| 04-D-0014 | 6/7/2004 | 7/30/2008 | $201,238,975 | DAP | 702,173 |
| 04-F-0126 | 7/7/2004 | 5/23/2005 | $24,756,750 | OTV | 50,000 |
| 05-D-0003 | 12/22/2005 | 2/5/2007 | $190,914,247 | OTV | 340,824 |
| | | | $9,816,260 | Yokes and Collars | 117,560 |
| 05-F-0072 | 6/3/2005 | 10/19/2005 | $4,800,000 | OTV Conver-sion Kit | 24,000 |
| 05-P-0204 | 9/26/2005 | 10/10/2006 | $1,995,145 | OTV Retrofit | 11,094 |
| 06-D-0024 | 5/15/2006 | 6/13/2007 | $ 569,520 | OTV Retrofit | 3,000 |
| **Total** | | | **$ 434,090,897** | | **1,248,651** |

Contract 0014 was awarded on June 7, 2004, for DAPs. The DAPs consisted of two ambidextrous modular components, the Deltoid (Upper Arm) Protector and the Axillary (Under Arm) Protector. The Deltoid Protector attaches at the shoulder of the OTV and is secured around the wearer's arm with a strap. The Axillary Protector is worn under the OTV and is attached to the underside of the shoulder portion of the OTV and to the

interior adjustment strap on the lower side of the OTV. The DAPs were issued in sets, which consisted of two Deltoid and two Axillary Protectors.

Contracts 0126 and 0003 were awarded on July 7, 2004, and December 22, 2004, respectively, for OTVs. The OTV base vest assembly is composed of a camouflage outershell base vest carrier with a ballistic insert set made up of removable ballistic (back, right front, and left front) inserts. Further, contract 0003 purchased yoke and collar assemblies.

Contract 0072 was awarded on June 3, 2005, for DAP outershells. On June 10, 2005, the product was changed from DAP outershells to OTV Conversion Kits. Because the Army changed its uniform pattern, the Conversion Kit contained the following components in Universal Camouflage pattern: OTV Carriers/Outershells, Groin Protector Carriers/Outershells, Throat Protector Carrier/Outershell, Yoke and Collar Assemblies, and Deltoid and Axillary Protector Carrier/Outershell. Therefore, this contract did not require ballistic testing.

Contracts 0204 and 0024 were awarded on September 26, 2005, and June 15, 2006, respectively, for the Retrofit/Reconditioning and Conversion of Returned Interceptor Body Armor OTVs. Retrofit/Reconditioning was needed to transition IBA to the new Universal Camouflage pattern. This process required Point Blank to inspect returned OTV ballistic panels contained in the outer carrier assembly, throat protector, and groin protector for re-use in the new outer carriers. The vendor was also required to replace the OTV outer carriers with new OTV outer carriers, provide a new yoke and collar assembly, replace any other component that may be missing with a new component, and ensure that all components of the OTV were labeled with the applicable COPD.

# Army Program Executive Office Soldier Comments

( UNCLASSIFIED )

| ARMY STAFFING FORM<br>For use of this form,see DA Memo 25-52; the proponent agency is AASA. | 1. TRACKING NUMBER<br>100914066 | 2. TODAY'S DATE (YYYYMMDD)<br>20101013 | 3. SUSPENSE DATE (YYYYMMDD)<br>20101026 |
|---|---|---|---|
| 4. OFFICE SYMBOL<br>SAAL-SMS | 5. SUBJECT<br>Comments required-DoDIG Draft Report-Ballistic Testing and Product Quality Surveillance for the Interceptor Body Army dated 20 September 2010 | | |

| 6. ROUTING: (ECC USE ONLY) | | Initial | Date |
|---|---|---|---|
| | SA | | |
| | CSA | | |
| | USA | | |
| | VCSA | | |
| | AASA | | |
| | DAS | | |
| | SMA | | |
| | DUSA | | |
| | VDAS | | |

ECC POC _____ (Rank, Name, Phone) DIR, ECC _____

COMMENTS:

7. EXECUTIVE SUMMARY / ACTION MEMORANDUM

Key Points

- Department of Defense Inspector General (DoDIG) is performing a series of Interceptor Body Armor audits in response to Congressional request.
- This audit covers six contracts awarded to Point Blank Body Armor for vest components.
- On 20 September 2010, DoDIG issued a draft report for review and comment with recommendations, including providing FAT waivers in writing and performing a risk assessment on 560 plate lots.

**Ref:** "Ballistic Testing and Product Quality Surveillance for the Interceptor Body Armor-Vest Components Needs Improvement" DoDIG draft report dated 20 September 2010

**Encl:** TAB A: Memorandum for LTG Phillips' signature
TAB B: Memorandum for First Article Test (FAT) and Lot Acceptance Test (LAT) waiver policy
TAB C: DoDIG Draft Report, Project No. D2008-D000CD-0256.005 dated 20 September 2010

**1. Purpose:**
Obtain Assistant Deputy for Acquisition and Systems Management's (ADASM's) signature on the memorandum at TAB A.

**2. Discussion:**
a. Recommendation A. PEO Soldier institute a policy that requires all decisions to waive FAT or LAT be approved in writing and any other decisions that may impact the Interceptor Body Armor Program be justified in writing and provided to the contracting office along with adequate documentation to support the decision.
Army Response: Concur. The draft policy at TAB B specifies that all decisions to waive FAT or LAT and/or impact the Interceptor Body Armor Program be approved and justified in writing as stated above. The policy will be issued by 30 November 2010.
b. Recommendation B.1. PEO Soldier to perform a risk assessment to determine whether a recall of any or all of the 560 lots that met LAT requirements is needed.
Army response: Concur. PEO Soldier will perform a risk assessment on the 560 lots and take appropriate actions based on the results of the risk assessment. The assessment is expected to be completed No Later Than April 2011 in order to allow a thorough analysis of the lots in question.
c. The DoDIG report noted several Internal Control Weaknesses, specifically a lack of documentation when waiving requirements and allowing support contractors to perform inherently Governmental functions.
Army response: PM Soldier Equipment has implemented policy changes to prevent recurrence of the above. Additional Management comments reflect more precise terms of reference to support the accuracy of the report.

**3. Recommendation:**
ADASM sign the memorandum at TAB A.

APPROVED _____ DISAPPROVED _____ NOTED _____ SEE ME _____ COMMENT _____

HQDA FORM 5, OCT 2007 ( UNCLASSIFIED ) Previous editions are obsolete. Page 1 of 3
APD PE v1.00

DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY
ACQUISITION LOGISTICS AND TECHNOLOGY
103 ARMY PENTAGON
WASHINGTON DC 20310-0103

SAAL-SMS

NOV - 4 2010

MEMORANDUM FOR U.S. ARMY AUDIT AGENCY, 3101 PARK CENTER DRIVE, ALEXANDRIA, VA 22302

SUBJECT: Response to the Department of Defense Inspector General (DoDIG) Draft Report, Ballistic Testing and Product Quality Surveillance for the Interceptor Body Armor–Vest Components Needs Improvement, Project Number D2008-D000CD-0256.005, 20 September 2010

1. Pursuant to the DoDIG memorandum, dated 20 September 2010, the following information is provided in response to the DoDIG request for comments to the subject draft report.

a. Recommendation A. Institute a policy that requires all decisions to waive the first article and Lot Acceptance Test (LAT) be approved in writing and any other decisions that may impact the Interceptor Body Armor Program are justified in writing and provided to the contracting office along with adequate documentation to support the decision.

U.S. Army Management Action: PEO Soldier will issue a policy letter by 30 November 2010 specifically stating the Contracting Officer will approve in writing decisions to waive the First Article Test (FAT) and LAT. A draft of this policy letter is provided at the Enclosure. Further, PEO Soldier will provide the contracting office written justification, and adequate documentation, to support the decision to waive the FAT and/or LAT and any other decision that may impact the Interceptor Body Armor Program.

b. Recommendation B.1. Perform a risk assessment to determine whether a recall of any or all of the 560 lots is needed as a result of the Defense Contract Management Agency, Orlando sampling process and based on the results of the risk assessment take appropriate action.

U.S. Army Management Action: PEO Soldier will perform a risk assessment to determine whether a recall of any or all of the 560 lots is needed as a result of the Defense Contract Management Agency, Orlando sampling process. PEO Soldier will take appropriate actions based on the results of the risk assessment, which is expected to be completed by April 2011.

c. Internal Control Weaknesses for Product Quality Surveillance Process. The Program Manager lowered the minimum velocity requirements and waived the LAT requirements, which were not documented at the time the decision was made; and support contractors approved the LAT results, an inherently governmental function.

U.S. Army Management Comments: Program Executive Office (PEO) Soldier agrees that 1) the Army adjusted the minimum velocity requirements from CO/PD 00-02 to CO/PD 00-02A, 2) the LAT was waived for items that previously met the First Article ballistic standards, and 3) Army support contractors approved the LAT results. Each item is addressed below.

(1) The CO/PD change was necessary because the V50 ballistic requirements established in CO/PD 00-02 were unobtainable at the then-current state of technology. After several successful OTV procurements using the 14 May 1998 OTV purchase description, US Army procurement officials increased the V50 fragmentation requirements with CO/PD 00-02, issued 30 January 2002, in an attempt to increase the OTV fragmentation performance baseline for future procurements. However, testing revealed that the OTV fragmentation requirements in CO/PD 00-02 were not consistently attainable at the current OTV weight requirement. To avoid increasing the weight of the OTV, and reduce the risk of fielding delays and lot rejections, PM SEQ modified the testing requirements during the 2002 Defense Supply Center Philadelphia (DSCP) source selection conducted under solicitation SPO100-02-R-4025. The net result of the change from CO/PD 00-02 to CO/PD 00-02A was to restore the OTV fragmentation performance baseline to the values in the prior 14 May 1998 OTV purchase description. Importantly, CO/PD 00-02A was issued during source selection as an amendment to the DSCP solicitation SPO100-02-R-4025 - prior to contract award. This rationale has been documented in further detail and provided to the DoDIG in a Memorandum for the Record, subject: Outer Tactical Vest V50 Minimum Velocities in Purchase Description CO/PD 00-02, dated 8 December 2009. In order to ensure future requirement changes are properly documented, the Army will comply with the Department of Defense Instruction 5010.40, "Managers' Internal Control Program Procedures," 4 January 2006.

(2) As mentioned in paragraph 1.a, PEO Soldier will issue a policy letter ensuring that the Contracting Officer approves any decision in writing to waive FAT and LAT.

SAAL-SMS
SUBJECT: Response to Department of Defense Inspector General (DoDIG) Draft Report, Ballistic Testing and Product Quality Surveillance for the Interceptor Body Armor–Vest Components Needs Improvement, Project Number D2008-D000CD-0256.005, 20 September 2010

(3) PEO Soldier agrees that Army support contractors approved the LAT results, an inherently Governmental function. As stated on page 14 of the draft DoDIG report, "PM Soldier Equipment has implemented new procedures for scoring of the ballistic test results which should prevent this condition from occurring in the future." This statement reflects procedural changes that will prevent support contractors from performing inherently Governmental functions.

2. The point of contact is [redacted], or e-mail: [redacted]

Encl

Ross R. Guckert
Assistant Deputy for Acquisition
and Systems Management

# Defense Contract Management Agency Comments

DEFENSE CONTRACT MANAGEMENT AGENCY
OPERATIONS DIRECTORATE
6350 WALKER LANE, SUITE 257
ALEXANDRIA, VIRGINIA 22310-3241

DCMA-O

MEMORANDUM FOR Defense Inspector General, Program Director, Acquisition and Contracting

SUBJECT: DoD-IG Draft Audit Report of the "Ballistic Testing and Product Quality surveillance for the Interceptor Body Armor-Vest components Needs Improvement"

Project No. D2008-D000CD-0256.005, dated September 20, 2010

This is the Defense Contract Management Agency's (DCMA) revised response to the DoD-IG draft report of the "Ballistic Testing and Product Quality surveillance for the Interceptor Body Armor-Vest components Needs Improvement". The Agency's comments on the recommendations are enclosed.

The point of contact [redacted]

MARIE A. GREENING
Chief Operations Officer, Operations Directorate

Enclosure
As stated.

**DCMA Comments to DoD IG Draft Report on the Audit of the "Ballistic Testing and Product Quality Surveillance for the Interceptor Body Armor – Vest Components Needs Improvement" (Project No. D2008-D000CD-0256.005, dated September 20, 2010)**

B.2. RECOMMENDATION: We recommend that the Director, Defense Contract Management Agency Orlando, improve the product quality assurance surveillance of Point Blank Body Armor, Inc. by:

a. Provide training to Quality Assurance Representatives on how to use the random number generator tool for selection of the vest components for lot acceptance tests.

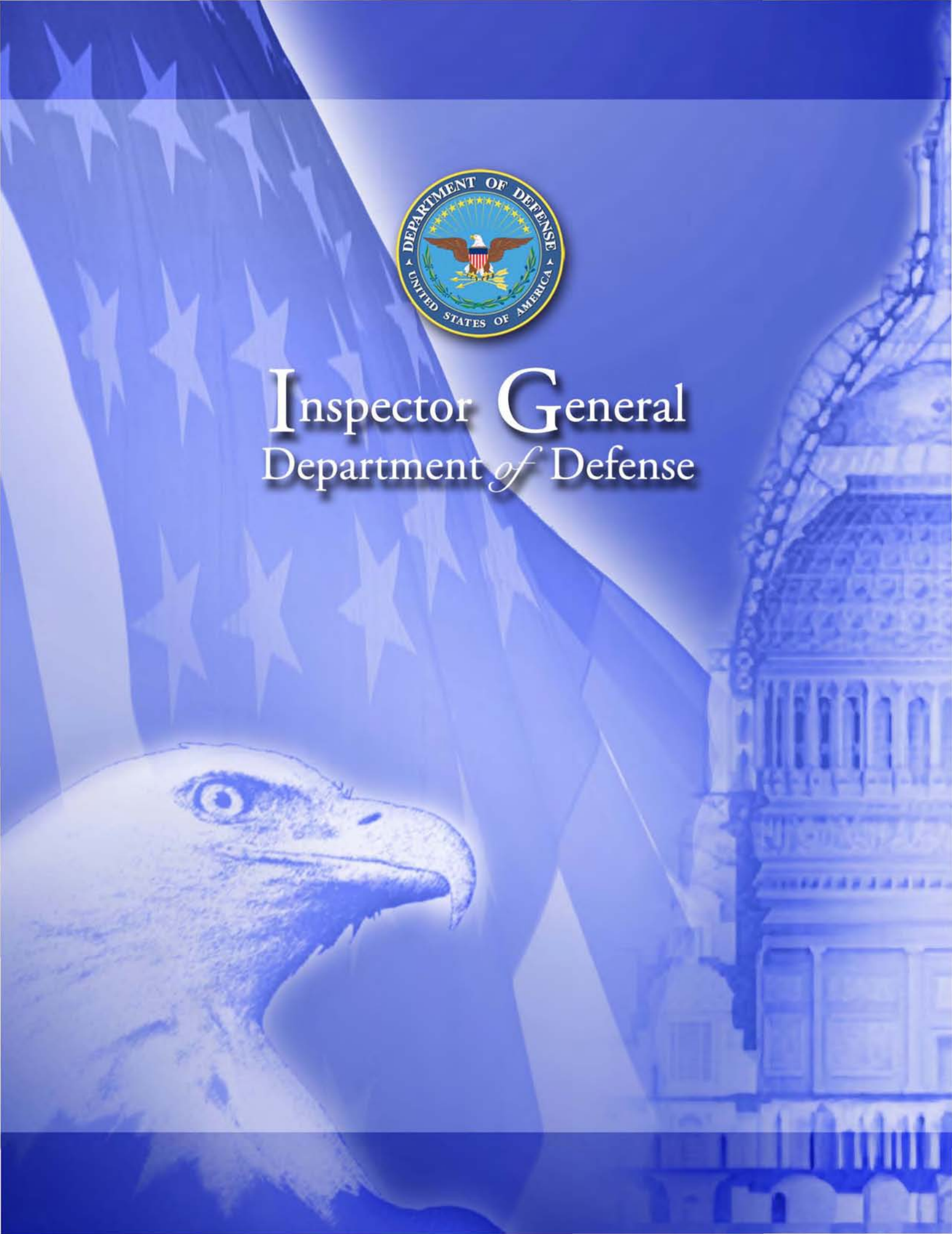
**DCMA Response**: Concur. Random number generator methodology has been implemented by all DCMA Quality Assurance Representatives (QARs) across the prime Body Armor contractor enterprise. QARs have been instructed in the appropriate use of statistically random sampling methodologies and tools. **DCMA sampling training was provided to all DCMA Body Armor QARs on 14 July 2010. Compliance is regularly verified by DCMA management via on-site Program Integrator observation and semi-annual Team Leader reviews with individual QARs. A Team Leader follow-up audit was completed in August 2010 and a joint Region/Operations Directorate site review was also performed in September 2010. Body Armor quality surveillance will continue to be reviewed via the Management Internal Control Review (MICR) process for 2011 and the out-years. Based on these assessments and continuing reviews, we believe the proper sampling is and will continue to occur at all Contract Management Office (CMO) locations where body armor is being produced.**

b. Revising the surveillance plan to include the Program Manager for Soldier Equipment's instructions regarding key processes. If a deviation occurs, Defense Contract Management Agency Orlando should consult with the Program Manager for Soldier Equipment and document its justification.

**DCMA Response**: Concur. The surveillance plan has been updated to include the Quality Assurance Letter of Instruction (QALI) and Program Manager's instructions on key processes. Deviations will be justified in writing and coordinated with the Program Manager. **QAR surveillance plan for Point Blank Body Armor dated 16 September 2010 was revised to specify all customer key process instructions. The current Surveillance Plan at Protective Products Enterprises (PPE), another body armor manufacturer, incorporates all customer key process instructions as well. CMO management regularly validates continued compliance via on-site Program Integrator observation, semi-annual Team Leader reviews with individual QARs, and MICRs for 2011 and the out-years. Furthermore, QAS workbooks will have linkage to a data analysis module which will provide graphical depictions of the results of key process and final inspections. The QASs will use this information to make changes to his/her surveillance approach and to communicate with the customer for possible changes to QALI instructions.**

c. Issuing a policy requiring the quality assurance representatives to consistently complete the inspection reports and ensure the reports contain sufficient and appropriate information.

**DCMA Response**: Partially Concur. DCMA already has policy in effect, DCMA Instruction 226-14, "Product Examination – QA," that requires QARs to establish and properly complete inspection records. We do agree, however, that enforcement and verification of compliance with said policy needs to occur. To ensure compliance, QARs are now logging all inspection activities in an automated database for Body Armor products. This database, entitled QAR Body Armor Workbook, contains links to the contract, Wide Area Work Flow records, QALI, Surveillance Plan, DD 1711 and 1222s, sample selected serial numbers for lot inspections and testing, and customer lot testing audit notifications. DCMA is evaluating this Workbook tool for DCMA-wide implementation. **Implementation of the corrective action will be verified by DCMA Eastern Region Quality Assurance in a follow up visit to DCMA Orlando, scheduled 29 November to 1 December 2010. The Body Armor Workbook tool has been evaluated and will be deployed to all applicable CMOs by 13 December 2010. Periodic Workbook reviews will be performed by the DCMA Program Integrator and semi-annual Team Leader reviews will be conducted with individual QARs and MICRs for 2011 and the out-years.**


Inspector General
Department of Defense