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Before the Committee on Armed Services,
House of Representatives

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DEFENSE LOGISTICS

**Army and Marine Corps'
Body Armor Requirements,
Controls, and Other Issues**

Statement of William M. Solis, Director
Defense Capabilities and Management Issues





Highlights of [GAO-07-911T](#), a testimony before the Committee on Armed Services, House of Representatives

Why GAO Did This Study

In recent years, a number of reports and newspaper articles have cited concerns regarding the level of protection and the available amounts of body armor to protect deployed service members. As part of GAO's efforts to monitor the Department of Defense's (DOD) and the services' action to protect ground forces, GAO reviewed the Army and Marine Corps's actions to address these concerns.

On April 26, 2007, GAO issued a report regarding the Army and the Marine Corps's individual body armor systems. Today's testimony summarizes the report's findings regarding the extent to which the Army and Marine Corps (1) have met the theater requirements for body armor, (2) have the controls in place to assure that the manufacturing and fielding of body armor meet requirements, and (3) have shared information regarding their efforts on body armor ballistic requirements and testing. The report also included additional information concerning whether contractors or non-DOD civilians obtain body armor in the same way as U.S. forces and DOD civilians given the number of contractors and non-DOD civilians in CENTCOM's area of operation. GAO did not make recommendations in the report. DOD officials did not provide written comments on the report but technical comments were incorporated as appropriate.

www.gao.gov/cgi-bin/getrpt?GAO-07-911T.

To view the full product, including the scope and methodology, click on the link above. For more information, contact William M. Solis at (202) 512-8365 or solisw@gao.gov.

DEFENSE LOGISTICS

Army and Marine Corps' Body Armor Requirements, Controls, and Other Issues

What GAO Found

Army and Marine Corps body armor currently meets theater ballistic requirements and the required amount needed for personnel in theater, including the amounts needed for the surge of troops into Iraq. The Interceptor Body Armor (IBA) consists of an outer tactical vest with ballistic inserts or plates that cover the front, back, and sides. The vest and inserts currently meet the theater ballistic requirements. The vest provides protection from 9mm rounds, while the inserts provide protection against 7.62mm armor-piercing rounds. CENTCOM requires that all U.S. military forces and all DOD civilians in the area of operations receive the body armor system. Currently, service members receive all service-specific standard components of the body armor system prior to deploying. The Army and the Marine Corps provide the DOD civilians with components of the armor system.

The Army and Marine Corps have controls in place during manufacturing and after fielding to assure that body armor meets requirements. Both services conduct quality and ballistic testing prior to fielding, and lots (a grouping of items varying in number) are rejected if the standards are not met. They also conduct formal testing on every lot of body armor (vests and protective inserts) prior to acceptance and issuance to troops. During production, which is done at several sites, the lots of body armor are sent to a National Institute of Justice-certified laboratory for ballistic testing and to the Defense Contract Management Agency for quality testing (size, weight, stitching) prior to issuance to troops. Although not required to do so, after the systems have been used in the field, the Army does limited ballistic and environmental testing to determine future improvements.

The Army and Marine Corps share information regarding ballistic requirements and testing although they are not required to do so. Title 10 of the U.S. Code allows each service to have separate programs, according to Army and Marine Corps officials. Nevertheless, the services are sharing information regarding ongoing research and development for the next generation of body armor.

DOD Instruction 3020.41 allows DOD to provide body armor to contractors and non-DOD civilians where permitted by applicable DOD instructions and military department regulations and where specified under the terms of the contract. It is CENTCOM's position that body armor will be provided to contractors if it is part of the terms and conditions of the contract. However, the officials indicated that commanders, at their discretion, can provide body armor to any personnel within their area of operation.



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The Army and Marine Corps have controls in place during manufacturing and after fielding to assure that body armor meets requirements. Both services conduct quality and ballistic testing prior to fielding, and lots (a grouping of items varying in number) are rejected if the standards are not met. They also conduct formal testing on every lot of body armor (vests and protective inserts) prior to acceptance and issuance to troops. During production, which is done at several sites, the lots of body armor are sent to a National Institute of Justice-certified laboratory for ballistic testing and to the Defense Contract Management Agency for quality testing (size, weight, stitching) prior to issuance to troops. Although not required to do so, after the systems have been used in the field, the Army does limited ballistic and environmental testing to determine future improvements.

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Mr. Chairman and Members of the Committee:

I am pleased to be here today to discuss our findings regarding Army and Marine Corps's individual body armor systems. As you know, since combat operations began in Iraq and Afghanistan, U.S. forces have been subjected to frequent and deadly attacks from insurgents using various weapons such as improvised explosive devices (IED), mortars, rocket launchers, and increasingly lethal ballistic threats. Since 2003, to provide protection from ballistic threats, U.S. Central Command (CENTCOM), which is responsible for operations in Iraq and Afghanistan and other areas, has required service members and Department of Defense (DOD) civilians in its area of operations to be issued the Interceptor Body Armor (IBA) system.¹

Congress has expressed strong interest in the quality of our ground force's body armor protection, especially since combat operations began in Iraq and Afghanistan and news reports citing concerns regarding body armor shortages and quality issues. In response to these concerns, we reviewed the Army and Marine Corps's actions regarding individual body armor systems, and on April 26, 2007, issued a report.² My testimony today summarizes the findings in this report. Specifically, I will discuss the extent to which the Army and Marine Corps (1) have met the theater requirements for body armor, (2) have the controls in place to assure that the manufacturing and fielding of body armor meet requirements, and (3) have shared information regarding their efforts on body armor ballistic requirements and testing. I will also include additional information concerning whether contractors or non-DOD civilians obtain body armor in the same way as U.S. forces and DOD civilians given the number of contractors and non-DOD civilians in CENTCOM's area of operation.

To assess these issues we focused on Army and Marine Corps body armor systems for U.S. service members and DOD and non-DOD civilian personnel deployed within CENTCOM's area of operations, including Iraq and Afghanistan. To determine whether the Army and Marine Corps are

¹U.S. Central Command (CENTCOM) is one of DOD's five geographic combatant commands, whose area of responsibilities encompasses 27 countries, including Iraq and Afghanistan, in Southwest Asia, South and Central Asia, and the Horn of Africa. Combatant commanders are responsible for overseeing U.S. military operations that take place in their geographic area.

²GAO, *Defense Logistics: Army and Marine Corps's Individual Body Armor System Issues*, GAO-07-662R (Washington, D.C.: Apr. 26, 2007).

meeting the theater ballistic and inventory requirements for body armor, we reviewed documentation and interviewed officials from key DOD, Army, and Marine Corps organizations, such as the Office of the Under Secretary of Defense, Acquisition, Technology, and Logistics, the Defense Logistics Agency, and CENTCOM, which are responsible for managing theater ballistic and inventory requirements. We analyzed the ballistic requirements and compared these requirements to the body armor systems provided to personnel. Moreover, we concentrated on the body armor system currently being used in CENTCOM's area of operation. We also obtained and reviewed the amount of body armor systems available worldwide for the Army and Marine Corps to determine if the available amount met the quantity needed in theater. We analyzed the distribution practices to assure that personnel were receiving body armor systems that met ballistic theater requirements and that these systems were available for those preparing to deploy. We did not independently verify that deployed personnel wore the body armor systems as recommended by their commanders.

To assess the extent to which the services have controls in place during manufacturing and after fielding to assure that body armor meets requirements, we reviewed documentation and discussed the services' ballistic test processes and procedures with their program and technical officials. We analyzed these test processes and procedures to determine if controls are in place that assure body armor meets ballistic requirements during manufacturing and after fielding. Our analysis included ballistic test methods for the tactical vests and the protective plate inserts; however, we did not independently verify test results. In addition, we reviewed the services' past experiences where the services concluded that fielded body armor systems failed to meet contract specifications and ballistic testing requirements. We analyzed the services' actions to determine if their actions corrected the failures. We also reviewed documentation and interviewed Army and Marine Corps body armor program officials who provided manufacturer production quality and ballistic testing lot failures for early 2006 through early 2007.

To identify the extent to which the Army and Marine Corps share information regarding their efforts on body armor ballistic requirements and testing, we analyzed the services' body armor programs and policies and discussed with service officials whether there is a requirement to share information between the services regarding their separate programs. We also discussed with officials and reviewed documentation to determine whether the services do share information and if shared, what specific actions they take. To determine whether contractors or non-DOD civilians

obtain body armor in the same way as U.S. forces and DOD civilians in CENTCOM's area of operations, we obtained and analyzed DOD and CENTCOM policy regarding personal protection for contractors and non-DOD civilians. We also interviewed Army, Marine Corps, and CENTCOM officials on this issue.

We did not make recommendations in our report. DOD officials did not provide written comments on the report but technical comments were incorporated as appropriate. We conducted our review from November 2006 to March 2007 in accordance with generally accepted government auditing standards.³

Summary

The Army and Marine Corps have taken several actions to meet theater requirements, assure testing, and share information on body armor. Contractors and non-DOD civilians receive body armor if this provision is included in a negotiated contract. Specifically, we reported that the Army and Marine Corps

- are currently meeting theater ballistic requirements and the required amount needed for personnel in theater, including the amounts needed for the surge of troops into Iraq;
- have controls in place during manufacturing and after fielding to assure that body armor meets requirements; and
- share information regarding ballistic requirements and testing, and the development of future body armor systems, although they are not required to do so.

Regarding contractors or non-DOD civilians, we found that DOD Instruction 3020.41 allows DOD to provide body armor to contractors where permitted by applicable DOD instructions and military department regulations and where specified under the terms of the contract. CENTCOM's position is that body armor will be provided to contractors if it is part of a negotiated contract.

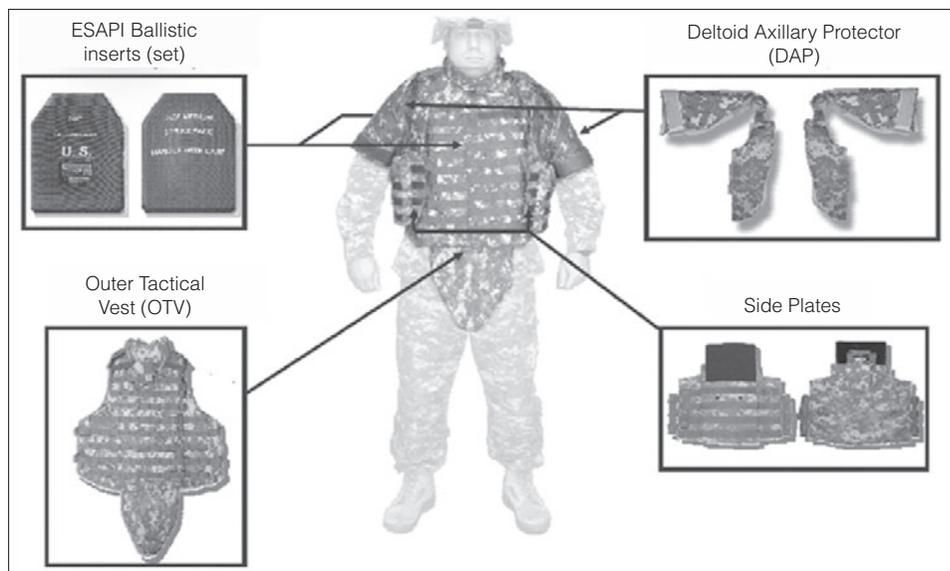
Background

Used by all U.S. military service members and DOD civilians in the area of operations, the IBA consists of an outer tactical vest with ballistic inserts

³ More detailed information regarding our scope and methodology can be found in GAO, *Defense Logistics: Army and Marine Corps's Individual Body Army System Issues*, GAO-07-662R (Washington, D.C.: Apr. 26, 2007).

or plates that cover the front, back, and sides. As the ballistic threat has evolved, ballistic requirements have also changed. The vest currently provides protection from 9mm rounds, while the inserts provide protection against 7.62mm armor-piercing rounds. Additional protection can also be provided for the shoulder, throat, and groin areas. Figure 1 details the body armor components.

Figure 1: Interceptor Body Armor System



Source: PEO soldier.

Note: The figure depicts the Army Basic System. The Marine Corps Basic System excludes the deltoid protector.

Concerns regarding the level of protection and amount of IBA needed to protect U.S. forces have been raised in recent years, prompted by a number of reports, newspaper articles, and recalls of issued body armor by both the Army and the Marine Corps. In May 2005, the Marine Corps recalled fielded body armor because it concluded that the body armor failed to meet contract specifications, and in November 2005, the Army and Marine Corps recalled 14 lots of body armor that failed original ballistic testing.⁴ Additionally, in April 2005,⁵ we reported on shortages of

⁴Army and Marine Corps officials told us they took actions to address the causes of lot failures.

critical force protection items, including individual body armor. Specifically, we found that the shortages in body armor were due to material shortages, production limitations, and in-theater distribution problems. In the report, we did not make specific recommendations regarding body armor, but we did make several recommendations to improve the effectiveness of DOD's supply system in supporting deployed forces for contingencies. DOD agreed with the intent of the recommendations and cited actions it had or was taking to eliminate supply chain deficiencies.

Army and Marine Corps Body Armor Meets Current Theater Requirements

Army and Marine Corps body armor currently meets theater ballistic requirements and the required amount needed for personnel in theater, including the amounts needed for the surge of troops into Iraq. Used by all U.S. military service members and DOD civilians in the area of operations, the IBA consists of an outer tactical vest with ballistic inserts or plates that cover the front, back, and sides. The vest and inserts currently meet the theater ballistic requirements. The vest provides protection from 9mm rounds, while the inserts provide protection against 7.62mm armor-piercing rounds. Additional protection can also be provided for the shoulder, throat, and groin areas. The Army and Marine Corps body armor meets the required amounts needed for personnel in theater as well. Table 1 details Army and Marine Corps theater requirements and worldwide inventory quantities of the body armor as of February 2007.

Table 1: Army and Marine Corps Body Armor Requirement as of February 2007

Body Armor Systems	Army		Marine Corps	
	Amount needed in theater	Current worldwide available inventory	Amount needed in theater	Current worldwide available inventory
Outer tactical vest	154,000	991,580	23,000	198,088
Enhanced small arms inserts	154,000	402,369	23,000	56,970
Side protection	154,000	244,192	23,000	50,500
Shoulder protection	154,000	243,229	4,600	4,600

Sources: Army Operations, PEO Soldier, and Marine Corps Systems Command.

Note: Army and Marine Corps amounts include service personnel, DOD civilians, and contractors embedded with units. For the Army, shoulder protection is issued, but its use is optional. For the Marine Corps, shoulder protection is only issued to specialized personnel such as turret gunners.

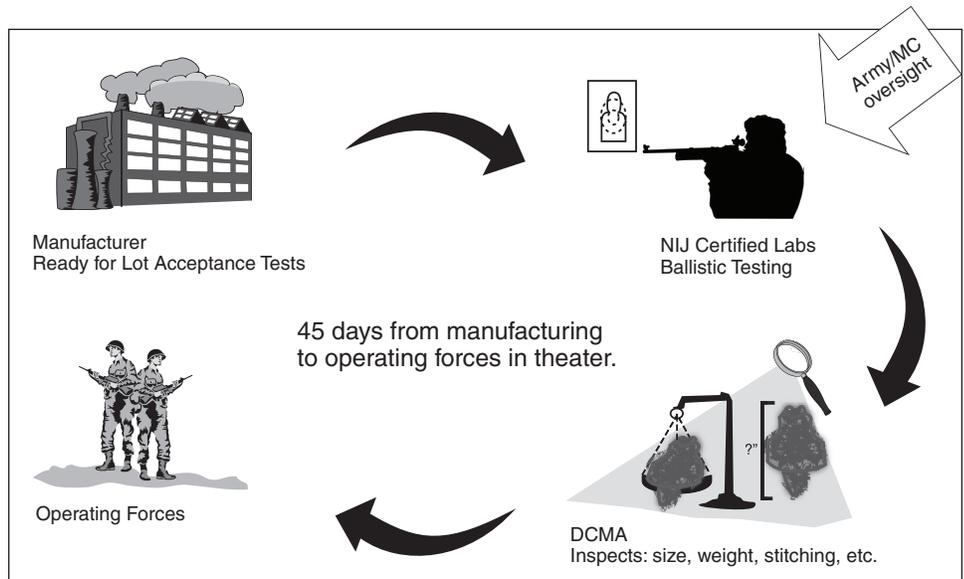
⁵GAO, *Actions Needed to Improve the Availability of Critical Items during Current and Future Operations*, GAO-05-275 (Washington, D.C.: Apr. 8, 2005).

CENTCOM requires that all U.S. military forces and all DOD civilians in the area of operations receive the body armor system. Currently, service members receive all service-specific standard components of the body armor system prior to deploying. For example, the Army issues the shoulder protection equipment to all its forces; however, Marine Corps personnel receive this equipment item in theater on an as-needed basis. The Army and the Marine Corps provide the DOD civilians with components of the armor system. However, the time frame for receipt of these items varies as some receive the body armor prior to deploying and others upon arrival in theater. Army unit commanders only reported one body armor issue in their December 2006 to February 2007 classified readiness reports. This one issue did not raise a significant concern regarding the body armor. Moreover, Marine Corps commanders' comments contained in the December 2006 and January 2007 readiness reports did not identify any body armor issues affecting their units' readiness. In December 2006 and January 2007, the Army, in its critical equipment list did not identify body armor as a critical equipment item affecting its unit readiness.

Controls in Place to Assure Body Armor Meets Requirements

The Army and Marine Corps have controls in place during manufacturing and after fielding to assure that body armor meets requirements. Both services conduct quality and ballistic testing prior to fielding and lots are rejected if the standards are not met. They both also conduct formal testing on every lot of body armor (vests and protective inserts) prior to acceptance and issuance to troops. During production, which is done at several sites, the lots of body armor are sent to a National Institute of Justice-certified laboratory for ballistic testing and to the Defense Contract Management Agency for quality testing (size, weight, stitching) prior to issuance to troops. Figure 2 illustrates the lot acceptance process.

Figure 2: Lot Acceptance Process for Army and Marine Corps Body Armor



Sources: GAO and Art Explosion.

Once approved, the body armor is issued to operating forces. Currently, both Army and Marine Corps personnel are issued body armor prior to deployment. The Army lot failure rate from January 2006 to January 2007 was 3.32 percent for the enhanced small arms inserts, and there were no failures for the outer tactical vests.⁶ From February 2006 to February 2007, the Marine Corps lot failure rate was 4.70 percent for the outer tactical vests.

Although not required to do so, after the systems have been used in the field, the Army does limited ballistic testing of outer tactical vests and environmental testing of the outer tactical vests and the inserts. The Marine Corps visually inspects the vest and the plates for damage. According to Army officials, there has been no degradation of body armor based on ballistic and environmental testing results. Additionally, to determine future improvements, the Army and the Marine Corps body armor program offices monitor and assess the use of body armor in the

⁶The lot failure rate is calculated by dividing the total lots rejected by the total lots tested. A lot is a pallet or grouping of manufactured items varying in number per lot. For example, the Army's outer vest lots range from 1,100 to 1,200. A lot is manufactured within a specific period of time, at a common location.

field, including the review of medical reports from the Armed Forces Medical Examiner. For example, the Army and Marine Corps added side plates and throat protection based on body armor usage in the field.

DOD has a standard methodology for ballistic testing of the hard body armor plates, but not for the soft body armor vest. Currently, DOD's Director, Operational Test and Evaluation Office is developing a standard methodology for ballistic testing of the soft body armor to eliminate discrepancies in testing methodologies. The new standard is expected to be issued sometime in 2007.

Army and Marine Corps Share Body Armor Information

The Army and Marine Corps share information regarding ballistic requirements and testing, and the development of future body armor systems, although they are not required to do so. For example, in August 2006, the Marine Corps attended the Army's test of next generation body armor types at Fort Benning, Georgia. Similarly, the Army sent representatives to attend the Marine Corps's operational assessment of the new Modular Tactical Vest. DOD officials indicate that there is no requirement to share information. Title 10 of the U.S. Code allows each service to have separate programs, according to Army and Marine Corps officials. Nevertheless, the services are sharing information regarding ongoing research and development for the next generation of body armor.

Contractors and Non-DOD Civilians Are Provided Body Armor Where Permitted

Regarding contractors or non-DOD civilians, DOD Instruction 3020.41 allows DOD to provide body armor to contractors where permitted by applicable DOD instructions and military department regulations and where specified under the terms of the contract. It is CENTCOM's position that body armor will be provided to contractors if it is part of the terms and conditions of the contract. According to CENTCOM officials, non-DOD government civilians such as State Department civilians are expected to make their own arrangements to obtain this protection. However, the officials said that commanders, at their discretion, can provide body armor to any personnel within their area of operation.

Conclusion

In conclusion, Mr. Chairman, the Army and Marine Corps have taken several actions to address concerns, including assuring that the body armor systems meet the current theater requirements and that the amounts needed in theater are available. However, ballistic theater threats can change, and the services will need to continue to monitor and evaluate the theater ballistic threats in order to develop and provide individual

body armor that can counter these changing threats. The services also will need to monitor and evaluate new technologies that may counter emerging theater ballistic threats. Moreover, they will need to continue to assure that controls are in place during manufacturing and after fielding to assure that existing and future body armor systems meet theater ballistic requirements.

Mr. Chairman, this concludes my statement. I would be pleased to respond to any questions you or other Members of the Committee may have.

Contacts and Staff Acknowledgments

For more information regarding this testimony, please call me at (202) 512-8365. Individuals making key contributions to the testimony include: Grace Coleman, Alfonso Garcia, Lonnie McAllister, Lorelei St. James, and Leo Sullivan.

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