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DEPARTMENT OF DEFENSE BODY ARMOR PROGRAMS

COMMITTEE ON ARMED SERVICES
HOUSE OF REPRESENTATIVES
ONE HUNDRED TENTH CONGRESS
FIRST SESSION

HEARING HELD
JUNE 6, 2007

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DEPARTMENT OF DEFENSE BODY ARMOR PROGRAMS

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
Washington, DC, Wednesday, June 6, 2007.

The committee met, pursuant to call, at 10:05 a.m., in room 2118, Rayburn House Office Building, Hon. Ike Skelton (chairman of the committee) presiding.

OPENING STATEMENT OF HON. IKE SKELTON, A REPRESENTATIVE FROM MISSOURI, CHAIRMAN, COMMITTEE ON ARMED SERVICES

The CHAIRMAN. The committee will come to order. This morning we will have testimony on the Department of Defense Body Armor Programs. We have with us today two panels. We have distinguished witnesses representing the military services, private industry, and independent agencies.

First, I want to thank them for appearing. I would like to remind the members, which I usually do anyway, that we are under the 5-minute rule; and because we have two panels, we want to move along as expeditiously as possible.

However, I ask unanimous consent that Mr. Ross of Arkansas, Mr. Radanovich of California and other noncommittee members, if any, be allowed to participate in today's hearing after all committee members have had an opportunity to ask questions.

Is there an objection?

If not, without objection, those Members will be recognized at appropriate times for five minutes.

The jurisdiction of our committee is such that we cover a wide range of issues with the significance of other issues relative to the importance of providing the best protection possible for our men and women serving.

Our committee has been in the forefront providing necessary, nonpartisan oversight on the full spectrum of protection matters. Since 2001, our committee has authorized over $5 billion to help the services procure body armor and expand that industrial base.

Effective body armor is the baseline component to force protection. It is critical to promoting the survivability of military personnel serving in combat environments.

Recent media reports have suggested that we may not be providing the best body armor available. NBC News commissioned an independent round of limited ballistic tests that compared current body armor to another system called Dragon Skin. NBC indicates the results from these limited tests favor Dragon Skin over the current military Interceptor Body Armor (IBA).

NBC tests contradict the information provided to this committee by military and Department of Defense (DOD) officials in numerous briefings and hearings. Most recently, the Army indicated to this committee in a closed briefing on May the 24th that they conducted first article live-fire ballistic tests on the Dragon Skin system in May of 2006. These tests also included environmental constraints such as subjecting the vests to extreme temperatures and fluids to ensure the vests would hold up to conditions that the troops might find in the field. The Army tests engaged in showed Dragon Skin failed to meet the military body armor specifications.

We are here today to gain a better understanding of our facts and to reassure our constituents that our goal remains that we are ensuring their sons and daughters are being provided the best body armor available.

I ask unanimous consent to put the balance of my statement in the record.

However, I wish to point out that we have as witnesses on the first panel:

Representing Pinnacle Armor, Inc., Mr. Murray Neal, President and Chief Executive Officer, Mr. Neal. We thank you.

The Honorable Philip Coyle, III. Mr. Coyle served at the NBC News tests. And thank you, Mr. Coyle.

After Panel I concludes, we will have Panel II:

Lieutenant General Ross Thompson, III; representing the Department of Navy, Mr. Roger Smith; representing the Marine Corps, Colonel Ed Smith; representing the Air Force, Douglas Thomas; representing the Special Operations Command, Colonel Kevin Noonan; representing the Government Accountability Office (GAO), Mr. Bill Solis, the Director of Defense Capabilities and Management; and representing the National Institute of Justice (NIJ), Dr. Jonathan Morgan.

With that, I will recognize the ranking member, my friend from California, Mr. Duncan Hunter.

[The prepared statement of Mr. Skelton can be found in the Appendix on page 85.]

STATEMENT OF HON. DUNCAN HUNTER, A REPRESENTATIVE FROM CALIFORNIA, RANKING MEMBER, COMMITTEE ON ARMED SERVICES

Mr. HUNTER. Thank you, Mr. Chairman, and thanks for holding this hearing. I think it is a good hearing and it is a good—it is always, always the right time to work on force protection.

You know, I looked over a few of the statements that were submitted to the hearing. Mr. Coyle, we have worked with you for a long time and appreciate your statement that you sent in. But one that I wanted to lay out first, I noticed a statement by you saying you thought that the Armed Services Committee needed to be more open to innovation. And I thought that we needed to let you know about some of the innovations that we have done.

When our guys started to get hurt with Improvised Explosive Devices (IEDs) in Iraq, this committee went to Defense Advanced Research Project Agency (DARPA) and got money and we built a gun truck. In fact, we built over 113 of them and gave them to the U.S.

Army. The Army ultimately funded a few of them, but we basically gave them to them—built it with DARPA money.

This is a picture of one of them that I am going to send down to you. This is one of the gun trucks, called the Iron Horse; and there is a letter written to one of the Livermore personnel who helped to put this together, thanking him for saving his life with this truck that has a double hull with an inch and a quarter of E Glass, something that has never been done by any of the services, that we distributed to Iraq, that has taken massive IED blasts. And to my knowledge, not one of these trucks that was provided by this committee was ever penetrated.

Now, that is an initiative that this committee took with no urging from any service but because we needed it.

I have got another picture, and that is something we call Little Blue that is a portable jammer. Ten thousand of these jammers were provided by this committee in 70 days, which was a record time from start to finish, so that our marines and soldiers could have a jammer that they could carry on foot patrols, because as you know, all of the jammers that we had in the theater heretofore were massive jammers that had to be carried on Humvees or larger vehicles.

We turned those babies out in 70 days, 10,000 of them; and we found out that we needed to bypass acquisition regulations. So there is a third thing I want you to take a look at, and that is a one-page certification for the Secretary of Defense (SECDEF) that Mr. Skelton and I and the other members of the committee provided by changing the law. That says, if we are taking hits on the battlefield, if we are taking injuries on the battlefield, the Secretary of Defense, by signing his name, can waive every acquisition regulation in the United States and move equipment to the battlefield quickly; and by signing that, Secretary Rumsfeld allowed us to get 10,000 jammers to the field in 70 days—incidentally, a record that hasn't come close to being broken since we have reverted back to the old system.

Now, I know that Mr. Abercrombie has worked on this issue that we are going to talk about today, and Mr. Skelton also. I wanted to just offer a little corporate history here.

I heard about the Dragon Skin either from a soldier or a marine who had heard about it from a family member or from a Web site; I can't remember exactly which one. But I called our staff here and said, Bring these guys in; let's see what they've got.

Your guys, Mr. Neal, came in and met with the Armed Services folks; and our guys called up the Army and said, We wanted you to test this, to which the Army responded, We have already got a test laid on. And I have got a letter here, but apparently they also responded to Mrs.—to Senator Hutchison, who had made a request to have Dragon Skin tested.

The Army said, We are going to test it; and the Army did test it.

Now, I have looked at the tests today, the tests that they did, and they said they did these tests with you folks present at the test. Showed a lot of penetrations. I saw after that—the back-and-forth where you felt that you had unfair tests. You shot at the edges, and other things were done that you think allowed these

penetrations to take place, but there are fairly substantial penetrations in that armor.

Now I understand that you then went to a German tester and you got a test done that indicated that Dragon Skin does great.

A couple of things: I think that there is always a massive bureaucracy in the Department of Defense. We all know that, and we in Congress who helped to create that bureaucracy with our rules and regulations—many of which attend the competitive arena and accommodate the competitive arena, which you wouldn't have otherwise.

But we also have the ability to move very quickly, and often there is a response, a bureaucratic response. It builds up. That does impede getting equipment to the battlefield quickly.

I don't know which category this falls in, but I do know this: The Army reported back to us, after we told them we wanted them to test this, that they did test this and they told us the results and they showed penetrations.

I know there are lots of folks, families paying 5K apiece for this body armor. I can tell you there are five members of this committee who have their kids at one time or another wearing body armor in theater, either Iraq or Afghanistan. And that includes this Member of Congress. In fact, as we sit here today, my son is wearing, on his third tour, the body armor that is issued to him by the U.S. Marine Corps, the same stuff that everybody else is using.

So what I would like you to address today is whether or not you folks have come to closure with the Army on doing a test.

The Army informed us that it took five months to get a set of Dragon Skin or enough sets from you guys to get the test done, but that ultimately it was done with you folks attending the test. And I want to know what your take is, if you stood there and watched them shoot this stuff and the bullets went through it, if you think the test was faulty. If it wasn't faulty, why didn't you speak up, or let us know that you thought you had a faulty test? And did you talk to the Army about it? And then we are going to ask the Army if there is an opportunity to take this stuff out and shoot it and see if it works.

And, Mr. Coyle, as a guy who has worked on lots of things like the B–2 bomber and lots of other very complex systems, it seems to me that this shouldn't require rocket science to tell if a bullet goes through a certain substance. We ought to be able to figure this out.

So I hope that we finish this hearing off by coming to some kind of an agreed-upon third-party test, Mr. Chairman, that will help to resolve this issue. And I think we need to move egos and personalities and cross-currents aside.

And, Mr. Neal, I saw some pretty strong statements by you after I asked our guys to have you come in and show us what you had. They wrote a report that said that they saw what the Army had seen on this test. You had a couple of strong statements about them to the effect that they were part of a—part of the problem.

And I can just assure you that the guys that we have got working, the men and women that we have working on force protection, have had lots of occasions when they brought in the Army and the Marine Corps, and this committee has brought in the Army and

the Marine Corps, and we have put enormous pressure on them when they have not provided what we thought was needed to be provided in terms of force protection.

If you want to go to sleep, get some late night C-SPAN, you can run some of the old tests or some of the old C-SPAN of hearings that this committee has done on force protection with respect to Humvees, up-armor, and jammers and the like.

So we are interested in making sure we get the right protection for our troops. But the big question here is, how could the Army's test—which shows complete penetration, and I have looked at it—be so different from this test that you folks took with this independent agency in Germany? I would like to see those tests reconciled.

So, Mr. Chairman, thank you for holding this hearing today. I think it is absolutely timely, and I look forward to seeing how these, how the Army tests and the Dragon Skin tests stack up. And if you've got the—if you've got the real McCoy, Mr. Neal, we want to get it out there fast.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you very much, Mr. Hunter.

We will hear from the chairman of the subcommittee and the ranking member a bit later.

Be that as it may, we will now welcome Mr. Neal and Mr. Coyle. Thank you.

Mr. Neal.

STATEMENT OF MURRAY NEAL, FOUNDER AND CEO, PINNACLE ARMOR, INC.

Mr. NEAL. Thank you, Mr. Chairman.

Mr. Chairman, honorable members of the committee. Thank you for the opportunity to come before you today to give you the facts and information needed to make sure that as long as——

Mr. HUNTER. I think you have got the wrong Neal.

The CHAIRMAN. No. Mr. Abercrombie will speak later.

Mr. ABERCROMBIE. I want to get the testimony in.

The CHAIRMAN. I called on Mr. Neal. That is his name; is that correct?

Mr. NEAL. Yes, sir.

The CHAIRMAN. Go ahead. You are on.

Mr. NEAL. Thank you very much.

Mr. Chairman, honorable members of the committee. Thank you for the opportunity to come before you today to give you the facts and information needed to make sure that as long as we have American men and women in harm's way in Iraq, Afghanistan, or anywhere else, they will have the best possible body armor production available.

My name is Murray Neal, and I am the founder and chief executive officer of Pinnacle Armor, a company in Fresno, California. You have my written testimony addressing all of the concerns of testing, protocol issues, and my request for a fair and honest, unbiased hearing.

The bottom line for me, and I would say for the American people, is that Dragon Skin has been verified as the best body armor in the world by testing throughout the U.S., as well as in other allied

nations and beyond. Therefore, all we ask is for a third-party independent testing of Dragon Skin at a facility that has Office of the Secretary of the Defense Department Testing and Evaluation oversight.

Please note that the only testing facility where the Dragon Skin has allegedly failed happens to be the only place where the current Interceptor has always passed, which is why we are seeking a neutral and independent party.

That testing facility where the Interceptor always passes is the H.P. White Laboratory, which is primarily the Army's go-to lab for the testing of body armor. And I believe that any future tests at that laboratory of either type of body armor will yield the same results.

The Army tells you that it wants to test Dragon Skin along with the Interceptor, and we welcome such a test. But they insist on us using rigid-plate technology, and we insist on using the most technologically advanced, only flexible, rifle-defeating body armor in the world. If Dragon Skin performed as poorly as the Army claims, why is it doing everything in its power to obfuscate and avoid such an independent test, which would ostensibly validate its allegations against Dragon Skin and support Army claims that the Interceptor is the best body armor in the world, bar none?

There is a pattern of anti-Dragon Skin disinformation coming from the Armed Forces, and most of this can be traced to a single source.

If that isn't enough, you would be intrigued that despite the fact that the Army claims it uses H.P. White Laboratory as an independent facility, it is that source that runs the entire so-called "independent testing protocol," monitors and controls the test. General Mark Brown has told you that he told the media in the May 21st briefing that Mr. Karl Masters is, in Brown's words, the chief engineer and test director. That begs the question of how independent and unbiased the H.P. White test really was or could be in the future.

The issue of the lack of quality of the Interceptor vests was broadly discussed during a Federal investigation of a body armor defense contractor that was conducted by the FBI, the Defense Criminal Investigative agency, and the United States attorney for the Eastern District of New York.

This Federal investigation also determined that fielded Interceptor Body Armor did not meet ballistic standards. And the investigator discovered that the armor had failed these standards and was recalled, yet it is was still issued to our troops.

The Army allows the test director to have broad discretion above and beyond the written test protocols and procedures.

Lieutenant Colonel Gabriel Patricio of the Marine Corps, program manager responsible for body armor said, and I quote, "Failing or passing anything, that is a matter of some testing, procedures, and interpretations."

Over a 3-year period from 2002 to 2005, in cooperation with the Army Research Lab in Aberdeen, I worked on a development of a testing protocol for a flexible, rifle-defeating body armor that would provide a 95 percent level of confidence indicating multiple high-powered rifle rounds across the board. This is at a success rate

level that is 100 percent higher than the current issued Interceptor whose ballistic integrity degrades with each additional shot.

Natick was established to test and evaluate clothing and foodstuffs and additional, ancillary equipment for the military and now spends approximately—the vast majority of its time and budget on the ceramic-plate-based Interceptor Body Armor system.

The introduction of a flexible system like Dragon Skin would cost Natick a significant chunk of its research and development budget because the dated armor plate system would disappear. Could that threat to the Natick's budget be the reason for this opposition? I don't know.

Honorable members, when the smoke clears from a true, independent, third-party testing of Dragon Skin, you will see that Dragon Skin has the capability to substantially save American lives. That is the bottom line.

Thank you for your time and your invitation to lay out some facts and the true story of Dragon Skin, and for giving me the opportunity to share with you my passion for protecting the lives of men and women in harm's way.

Mr. Chairman, I would like to submit my testimony and documents package to be provided and entered into the record.

The CHAIRMAN. Without objection.

Mr. NEAL. Thank you.

[The prepared statement of Mr. Neal can be found in the Appendix on page 97. Also Pinnacle Armor submitted testimony including the HP White test results, general company literature, product profiles, and biographical information which is retained in the committee files.]

The CHAIRMAN. Mr. Coyle.

STATEMENT OF HON. PHILIP E. COYLE, III, SENIOR ADVISOR, WORLD SECURITY INSTITUTE

Mr. COYLE. Thank you, Mr. Chairman.

Mr. Chairman, Mr. Hunter, members of the committee, I very much appreciate the opportunity to appear before you today to discuss the comparative body armor tests sponsored by NBC and conducted in Germany early last month.

I last appeared before the Air and Land Subcommittee of this full committee on January 18, 2007. Then, as now, I provided a description of my affiliations. I do not have a financial conflict of interest in this matter.

This declaration constitutes the first section of my prepared statement. I won't read all of that now, but I would like to submit my entire statement for the record.

The CHAIRMAN. Without objection.

Mr. COYLE. I have over 30 years of test and test-related experience involving U.S. defense systems and equipment; and knowing this, NBC invited me to observe side-by-side body armor tests that were conducted at the Beschussamt Mellrichstadt laboratory in Germany on May 3, 2007. My role was to observe those tests, to provide advice and commentary where I saw fit; and I neither requested nor received any compensation from NBC for my time spent traveling to the laboratory nor for observing the tests.

This committee needs to be open-minded about looking at the questions which the NBC body armor tests have raised. I say this because you know that body armor is of critical importance to U.S. military personnel in Iraq and Afghanistan. However, in the recent past, this committee has not shown itself to be open-minded on issues raised by NBC. I refer to NBC reporting on active protective systems. The House Armed Services Committee (HASC) held two hearings to denounce NBC for raising those issues, and those hearings did not engage the specific facts which NBC raised. In the course of those two hearings, this committee received testimony from the U.S. Army which was misleading and sometimes just plain wrong.

On the positive side, after those two hearings, Senator John Warner requested an independent study of active protection systems. That study was completed 2 months ago by the Institute for Defense Analyses and showed that NBC was correct. The IDA study showed that the Trophy Active Protection System was the farthest along, as NBC had reported, and ranked the system which the Army system favored, the Raytheon "Quick Kill" system, ninth in terms of technical readiness.

In short, the IDA report confirmed that NBC got it right.

With respect to the questions that NBC has raised on body armor, I hope this committee will consider that NBC may have gotten it right again.

From the outset, it was apparent that NBC would not have the capacity to conduct full-scale body armor tests that would capture all of the variables of importance to the U.S. Army. For example, NBC did not conduct tests at high or low temperatures; all of the rounds fired in the NBC body armor tests were fired at ambient temperature. Nevertheless, it was important for NBC to be sure that their tests, although limited, were fair and conducted according to professional standards, which I can attest they were.

The results of the NBC tests, which are summarized on their Web site, were significant. The test showed that the Army Interceptor Body Armor meets U.S. Army requirements, something which I myself stated on camera. The NBC tests also showed that the ballistic protection from Dragon Skin body armor is better.

I would now like to talk about the actual results of those tests commissioned by NBC and conducted on May 3rd in Germany—actually, northern Bavaria.

At NBC's request, the Mellrichstadt laboratory performed comparative testing of the Army's body armor, Interceptor, which employs rigid plates inserted into large pockets in an outer vest, against Dragon Skin, a flexible body armor, which employs a series of overlapping disks, each a little larger in diameter than a silver dollar.

The Mellrichstadt laboratory is well familiar with the specifications governing body armor testing, regularly conducts body armor tests and has an outstanding reputation as the BMW of ballistic testing laboratories. Body armor tests are tested against a special kind of clay that simulates the resistance of the human body and provides a way to measure blunt force trauma. After each shot, each vest is removed to see whether or not the bullet has pene-

trated, and if not, to measure the blunt force trauma to a person wearing the vest.

The U.S. Army generally considers a cavity deeper than 44 millimeters to be a failure even if the bullet does not penetrate because the shock can be so great that the wearer of the body armor could die anyway. The sternum is a particularly dangerous area for blunt force trauma, as chest bones can be broken and propelled into the heart, lungs and so forth. A ruptured spleen or other damaged organ can be very dangerous, if not fatal, also.

The measure of this blunt force trauma is called BFS, or Back Face Signature. That is the depth of the indentation caused in the clay when a bullet strikes a body armor vest. The NBC test consisted of six groups of test firings involving a total of 31 rounds of ammunition of different types and lethalities.

Test number one was of Dragon Skin only. That is before the comparative testing began, a preliminary series of six shots were fired against Dragon Skin only using 7.62 caliber by 51mm long, M80 rounds. This is called a Level III threat, meaning capable of defending against high-powered rifle ammunition, and both Dragon Skin and Interceptor are National Institute of Justice certified at this level.

The Army requires that three rounds be defeated; the National Institute of Justice requires that six rounds be defeated. And in this first test series, six rounds were fired at Dragon Skin body armor, and it stopped all six rounds, allowing no penetration. The Back Face Signatures were well within the Army standard. So this test showed that Dragon Skin could defeat this threat and meet both the Army standard and the tougher National Institute of Justice standard.

From this point forward in this open testimony, I do not speak of the specific caliber or construction of each round fired in the NBC-sponsored test. Similarly, in their broadcast and on their Web site, NBC News did not describe the specific caliber or ammunition used in the comparative test because the Army believes that level of detail may assist the enemy.

NBC News did, however, share those details with the Army, and the Army itself reported some of those in an open press conference on May 21st.

Test 1a, part one of the first comparative test series, consisted of four rounds of a type of armor-piercing ammunition fired against an Interceptor Level IV vest with what are called "enhanced small arms protective inserts" installed in an outer vest. Level IV refers to a higher level threat from armor-piercing ammunition.

This test shows that the Army's Interceptor Body Armor meets minimum U.S. Army standards for this type of round at ambient temperature, which only requires body armor to stop one round of this type of ammunition. However, when taken to a third and fourth round, the blunt force trauma on the third round was high, 47mm at the top end of the range; and on the fourth shot there was a complete penetration of the Interceptor Body Armor.

Test 1b, part two of this comparative test series, consisted of six rounds of the same type of armor-piercing ammunition as was fired in Test 1a, but now fired against Dragon Skin.

This test showed that Dragon Skin also meets U.S. Army standards for this type of round at ambient temperature. Better still, Dragon Skin allowed no penetration in six rounds fired, and the blunt force trauma from each was significantly less than with Interceptor.

On average, the Back Face trauma signature was 56 percent greater with Interceptor than with Dragon Skin. This test was also significant because the Army has indicated that in its test of Dragon Skin last year, the Dragon Skin could not defeat this type of ammunition. In the test that I observed, it clearly did and never failed.

Test 2a, the next comparative test series, was conducted with a type of armor-piercing incendiary ammunition and consisted of six rounds firing at the Army body armor. This test shows that the Interceptor Body Armor can stop this type of armor-piercing incendiary ammunition, but when taken to a fifth round, the blunt force trauma exceeded general Army standards, and the sixth round allowed a complete penetration.

Test 2b then was conducted with the same type of armor-piercing incendiary ammunition as in 2a, but now against Dragon Skin, and six rounds were fired. This test showed the Dragon Skin can defeat this type of armor-piercing incendiary round as it did six times. There were no penetrations, and the depth of the blunt force trauma signature was dramatically less than for Interceptor. On average in this test series, the Back Face trauma depth was nearly 82 percent higher for Interceptor than for Dragon Skin.

The third and final test was of Dragon Skin alone. The ammunition fired was of a composite nature. The Army does not require its body armor to defend against a bullet of this lethality. Three rounds were fired. This test showed the Dragon Skin can defeat a highly lethal type of armor-piercing ammunition. Also notable is that the Back Face trauma signature on these three shots averaged less than 19 millimeters, less then half of the Army's 44mm standard, a standard which is only required for less lethal types of ammunition.

Given the NBC test results, the refusal of the Army to undertake side-by-side testing is puzzling. When NBC News Reporter Lisa Myers asked General Mark Brown whether the Army would do side-by-side testing, General Brown said that the Army doesn't do side-by-side testing, but tests to a standard. Of course, they test to a standard, but NBC News tested both vests to the Army standard, and Dragon Skin performed better.

Side-by-side testing means testing both types of body armor under the same conditions according to the same scoring rules, in short, a level playing field.

In his recent press conference, General Brown said he had all of the money and all of the leadership support he needed to get body armor and to get improvements to body armor. He also said that the Army is never satisfied with the status quo and that the Army is always looking for the next best thing and that if there is something better out there, we are going to buy it after we have live-fire tested it. If this is true, doing fair, contemporary, side-by-side tests should not be a problem.

I am not saying that Interceptor does not provide good protection; nor is retired Army General Wayne Downing, who observed the tests with me. He noted on camera, as did I, that Interceptor performed well during the NBC tests. But Dragon Skin was better, notably against multiple rounds and in reducing blunt force trauma which can kill even if a bullet doesn't actually penetrate the vest.

From the body armor tests that I observed in Germany, Dragon Skin appears to have five advantages, advantages in which I would think the Army and this committee would be interested. Those advantages appear to be, first, Dragon Skin is flexible and conforms better to the contours of the human body which is also helpful for female soldiers.

Dragon Skin covers more of the torso and does not leave gaps.

Dragon Skin is better against multiple shots.

Dragon Skin reduces blunt force trauma. The depth of the cavities caused in the test clay by shots fired at Dragon Skin were often half as deep as the cavities caused in the clay during Interceptor tests.

And fifth, Dragon Skin performed perfectly, allowing no penetrations, and defeated six rounds of a particularly deadly ammunition threat which U.S. troops in Iraq and Afghanistan may face.

Mr. Chairman, in conclusion, the controversy over the most effective body armor for the U.S. Army has been brewing for a long time and was not started by NBC. NBC, ABC, CBS, the Discovery Channel, the History Channel and the National Geographic Channel, that I know of, have all either aired programs on this controversy or plan to do so.

This does not count the scores of prank media sources who have reported on the body armor controversy. Even YouTube has pictures of Dragon Skin body armor testing on the Internet and Wikipedia has posted a carefully documented description of the history of this controversy. Some news organizations have shown successful ballistic tests of Dragon Skin body armor conducted on behalf of other agencies such as police departments.

In addition, officials with the FBI, the CIA, the U.S. Marshal Service, the GSA, the U.S. Navy, the U.S. Air Force, the Federal Protective Service, the Department of State, the Department of Energy, and the U.S. Coast Guard have all bought or placed orders for Dragon Skin. And so also have private security firms that provide security protection for high-ranking officials in Iraq or other dangerous places.

Mr. Chairman, the tests conducted by H.P. White for the Army in May 2006 and the NBC tests conducted this year can probably never be compared one for one. Too much time has passed since the tests a year ago, and the Army is overly invested in proving NBC wrong.

The best way to resolve this matter would be for the U.S. Army Test and Evaluation Command to conduct comparable side-by-side tests of both the Interceptor and Dragon Skin body armor.

Those tests should be overseen, in my view, by an independent third party such as the Director of Operational Tests and Evaluation. That is what the Senate Armed Services Committee has called for, and I hope the House Armed Services Committee will join the

Senate to call for a fair, balanced, and refereed body armor testing program.

Mr. Chairman, I would be pleased to take any questions you might have.

[The prepared statement of Mr. Coyle can be found in the Appendix on page 144.]

The CHAIRMAN. Thank you very much.

Mr. Coyle, in your prepared statement—and you made reference in your oral comments that you do not think our committee is open-minded in looking at questions—you make reference in your written statement, though I don't recall your using the phrase, the Active Protection Systems, which have nothing to do with body armor, but deal with devices that go on vehicles; and you question the Armed Services Committee which held two hearings, one in September when Mr. Hunter was chairman and one in January when I am chairman.

The Active Protective Systems won't be ready for prime time until March of next year, and I have no idea why in the world you make reference to that when we are talking about body armor. I frankly resent your doing so. I think we should stay on subject.

Mr. Coyle, let me ask you this: In the test that was done in Germany, who provided the Army body armor system for that test?

Mr. COYLE. The body armor system——

The CHAIRMAN. On the test that was done in Germany.

Mr. COYLE [continuing]. Was provided by Jim Magee, who, I understand from the press, is an inventor of the Interceptor system. I don't know where he got it.

The CHAIRMAN. You have no independent understanding as to whether this is the exact Interceptor system that the Army uses or not?

Mr. COYLE. I do not.

The CHAIRMAN. Let me ask you, Mr. Coyle, what does the Dragon Skin—say, size large—weigh, please.

Mr. COYLE. I don't know. You will have to ask Mr. Neal that.

The CHAIRMAN. Mr. Neal, do you know how much it weighs?

Mr. NEAL. Size large with two 10-by–12 plates, Level IV, weighs 24 pounds. Depending upon the area of coverage, it could weigh more or it could weigh less. That is one of the unique things about Dragon Skin. You can go from as small as an independent disk all the way up to a full torso wrap. Depending upon the size of coverage and the size of the vest, the weights will vary.

The CHAIRMAN. Suppose you have the fullest protection possible. How much would it weigh?

Mr. NEAL. Fullest protection in a Level III.

Mr. SKELTON. Large.

Mr. NEAL. On a large, full-torso wrap, Dragon Skin weighs 26.7 pounds.

The CHAIRMAN. If we were to do another test, how fast could you provide required 30 vests, Mr. Neal?

Mr. NEAL. I would have to look at the DFAS rated orders we have in house. We had the same situation initially with Brigadier General Moran's request. We had DFAS rated orders in house, and under Federal law, I am required to do them first unless I can aug-

ment production enough to not interrupt my deliverable timeline. I would anticipate probably by the middle of July.

The CHAIRMAN. Mr. Hunter.

Mr. COYLE. If I could comment about the first thing you raised.

The CHAIRMAN. I wish you would.

Let me tell you, Mr. Coyle, I don't care who is chairing this committee or who is on this committee, we do our best to protect the soldier. And we are open-minded on everything that we have before us. We are not rubber stamps for anyone. I think our recent bill shows that.

Go ahead and comment.

Mr. COYLE. Nor did I mean to imply anything of the sort.

The CHAIRMAN. I read your words.

Mr. COYLE. But what I said and what I meant was that I had the feeling that this committee was not open to issues when they were raised by NBC. I did not say that this committee was not open-minded. I did not say that this committee was not supportive of new innovations. I very much appreciate the examples that Mr. Hunter brought up of new innovation which might not have happened if not for this committee.

My only point was that, last January, it didn't appear to me that this committee was open to the questions that NBC raised and certainly didn't discuss those specific questions. And I was hoping that wouldn't happen this time just because it was an NBC thing.

That was my only point.

The CHAIRMAN. Mr. Hunter.

Mr. HUNTER. Mr. Coyle, without beating a dead horse, when did NBC become aware of Dragon Skin?

Mr. COYLE. I don't know.

Mr. HUNTER. Well, my memory is, because I heard about Dragon Skin from a Special Forces guy, or saw it on a Web site or something, that it was January of 2006 when I had our staff contact the Dragon Skin folks and had them come in and have a meeting with the Armed Services Committee, a year before NBC became interested in it. And we subsequently called the Army and told the Army that we wanted them to test it. The Army fired back that they, infact, had a request, I believe, from Kay Bailey Hutchison to do the same thing.

They did test it, and what I would like to have you look at—because I agree with you, let us get down to the nuts and bolts here—which test, which test is right and/or maybe, are both of them right, but they were using different types of material or different or disparate systems?

I have got the Army tests in front of me. The Army test in front of me has a—that they gave the committee has Dragon Skin with a bunch of holes in it, and I want to—let me ask the staff to bring that down and give that to you.

Could you give a copy of that to—have you got it there, Mr. Coyle?

Mr. COYLE. I believe I do.

Mr. HUNTER. Open that up to the chart that has got the photographs of Dragon Skin with the holes in it. Those are x rays that they took of the Dragon Skin.

And first, it says they weighed them, and the Dragon Skin was not 24 pounds; it was 48 pounds.

Am I missing something here? Because Mr. Neal said they are 27.

Mr. COYLE. I was not there. I didn't see these tests that were done a year ago last May. Mr. Neal was. I think it is probably better if you ask him.

Mr. HUNTER. Mr. Neal, we were told that your folks were present at the test. That is what the Army tells us. Were they present?

Mr. NEAL. Myself and one other individual were present at the test.

Mr. HUNTER. Now, if you go to the first shot, I am looking at the first test and they say this was done under ambient temperatures, and it says XL–01 front, second shot, complete penetration.

Now, Mr. Neal, we just heard of the tests that were done in Germany where you had, what, a total of—was it a total of, Mr. Coyle, of 12 shots or 18 shots that were taken? Some series of 6, right?

Mr. COYLE. You are talking about the German?

Mr. HUNTER. The German tests.

Mr. COYLE. All in all, there were 31.

Mr. HUNTER. Mr. Neal, is this an accurate x ray of the Dragon Skin with a hole in it, underneath the statement that says "second shot, complete penetration"? You were standing there when they shot that one, right?

Mr. NEAL. Yes, sir.

Mr. HUNTER. Do you think it was an unfair shot or a shot from a bad angle? Or what happened here?

Mr. NEAL. No. On that I don't think this is an unfair shot or an incorrect angle.

One of the things that is—in the process of going through this to show you, I have got copies that are in the data package of three different Power Point presentations that have been presented, and there is a little bit of discrepancy or difference in the data. And let me just show you one of those for your information, if I can find how these things were copied. Bear with me one minute, please.

On one of them, under the high temperature, 160——

Mr. HUNTER. Let's go to the low temperature first. It may be unfair to you guys to go to a high temperature. Let's go to the regular ambient temperature. It says "second shot, complete penetration." you were standing there.

Mr. NEAL. I don't disagree with that.

Mr. HUNTER. Okay. Then let's go to—let me ask you a question: Why do you think that the Army test, then—if you were standing there watching the Army test, and they fired the gun and the bullet went through the Dragon Skin, why didn't it go through the Dragon Skin in the German test?

What is your answer for that discrepancy?

Mr. NEAL. I don't have an answer for the discrepancy in that particular situation. You will have armor systems, it doesn't matter how many times they pass, once in a while you will end up with a complete penetration. That is just part of the nature of ballistics, and there is no way of getting around that.

However, that is why test protocols and procedures often have QA issues attached to them, such as this First Article Testing. It has the QA retest procedure.

If you—you are allowed—if you go through and you have some penetrations, they are required to be retested. That was never the case in this situation. And that is part of the protocol and procedures.

Mr. HUNTER. Let me ask you another question.

Turn to saltwater exposure. That one looks like you did pretty good on that one. It says, apparently, because there is always a chance you are going to have saltwater exposure if you are talking about the Marines, the Army, et cetera, it said results okay, okay, okay, okay.

Now go to motor oil exposure because apparently you—or diesel, and it is a diesel fuel exposure after that. The services believe that there will be an exposure to motor oil and diesel fuel, and they don't want to have degradation.

Now they have got under that, and they have got the pictures that back it up that after they shot it with you standing there, they have got second shot complete penetration on MO–1 front and then on MO–1 back, second shot complete penetration.

On the sides, to be fair, on the sides they have got that it stopped the bullets. But on the front and back complete penetration.

In your estimation, is that—was that an unfair test or do you think that is an unfair requirement that you can come in contact with motor oil and keep its structural integrity.

Mr. NEAL. No, I don't feel that's an unfair requirement. If you look at the x ray that has a round circle in it in the center, you will see the bullet residing in the armor. That is not a penetration. That is a defeat. The bullet did not go through the armor. It is residing in the center of that round circle that they call a penetration.

Mr. HUNTER. So how would you classify that?

Mr. NEAL. That is a defeat. If there was no bullet core residing in the x ray, it would have gone through the vest.

Mr. HUNTER. We will reserve that question then for the Army and let them explain that one.

Mr. NEAL. Same, too, with the diesel fuel exposure with—the one with the circle shows it has a bullet core sitting in the center of the circle. That is not a penetration. That is a defeat of the projectile.

Mr. HUNTER. So when they say "penetration," in your estimation that is not accurate. So we will bring that up with the Army when we let them take the witness table.

Now if you go to impact drop. Apparently they drop these things so that—because you are going to have your vests thrown around in the Army and the Marine Corps, et cetera.

They have got on the fourth test they have got left, 01, right side, first shot, complete penetration. Do you disagree with that? Was that an unfair——

Mr. NEAL. Yes, sir. Because the bullet core is residing in the upper 1 o'clock position within that circle. If the bullet is residing in the armor, the bullet was defeated. It did not penetrate and go through the armor.

Mr. HUNTER. Okay. So that is the third one where you say the bullet still hung in there and didn't get all the way through?

Mr. NEAL. Yes, sir.

Mr. HUNTER. Let's go to low temperature, and low temperature. I have got minus 60 degrees Fahrenheit. It says "okay" all the way through, then high temperature 160 degrees Fahrenheit. I thought that was a little high, but I was reminded when my kid went to Kuwait the other day on his way into country, it was like 137 degrees in the shade. So I take it the reason they got the 160 degrees is because if it is in the back of a Humvee and it is closed, you could get up to 160, right?

Mr. NEAL. You could have it in a metal container. You could have the armor sitting in—we have a lot of law enforcement officers who are in Arizona, and they wear their concealed armor and then they have the Dragon Skin tactical; and they throw it in the trunk of their vehicles all the time, and it has been with them all the time, and it is warm in the trunk.

Mr. HUNTER. I understand. But let me go to the test.

They took this up to 160 degrees in this test while you were there and they have got XL–03, front, first shot, complete penetration; XL–03, back, first shot, complete penetration; XL–03, left side, first shot, complete penetration.

What do you think? Did you observe those? Did you think they were unfairly taken or was there, in fact, complete penetration?

Mr. NEAL. Eight of the shots that were taken on the high temperature vests were shot in areas where there were no Dragon Skin ceramic discs. They shot through the textile component only. It did not engage the rifle-defeating portion of the body armor. That is not considered a——

Mr. HUNTER. How did that happen?

Mr. NEAL. What happened in this particular one—it was addressed with Mr. Masters and Mr. Zheng—was, we had a section, a 25mm strip where there was no adhesive in the material. We even cut it open, peeled the vest back.

The adhesive anomaly, as it was considered at that time, is—if I may explain this to you, because I have to tell you how it works. We have 200-yard rolls of an aramid textile that goes through a laminating press, which is similar to a wringer washer, and it is put under pressure and heat. The laminator that does it has 50-yard rolls. So they butt-joint them and run them through.

Well, what happened in this incident was, one pulled through, left a 25mm 1-inch gap where there was no adhesive. It did not get caught when we manufactured the vests, and that happened to be on the front——

Mr. HUNTER. So you are saying, basically your adhesive failed.

Mr. NEAL. No, it did not. It did not have adhesive in those areas. We have subsequently got with the manufacturer. The manufacturer now guarantees not a butt joint, but an overlap and additionally have to mark every time there is a joint to the right and left of the roll; and then we have now changed the QC procedures in house to visually inspect every one of those joints as well.

Mr. HUNTER. So the adhesive didn't fail, but there was a lack of adhesive because of a problem that you fixed.

So the stuff fell down, and you really didn't have a shoot through the armor. You really didn't have an opportunity to test the armor on that shot; is that accurate?

Mr. NEAL. What you will see here, where you see the one disk with the inside, the red circle, there was one roll of discs that we are missing. The second row for the x rays, those have been put in because you can see, as you compare to the left side, the lap overlap joints aren't the same.

We had peeled that back and we opened it up on the range. It was during that time that Mr. Zheng chose to shoot through. The textile component, as he said, he was gathering data points, and then it was at that time where they decided to shoot three individual discs by themselves.

One disk they shot in the center; it defeated the round. The second disk they shot half way between the center and the edge; it defeated the round. The third shot they fired approximately a quarter inch to three-eighths from the edge and the round went through, which is what it will do because you wouldn't shoot that close to the edge on the armor system.

So aside from that—oh, and by the way, the one that is in the circle here is the one they shot about the 6 o'clock position, very close to the bottom of the edge that did have the penetration.

Mr. HUNTER. Okay. So just to take it—and I thank you, Mr. Chairman, for letting me have some time, but you kind of have to go through this stuff. You are saying the first shot that went through, you kind of accept that. That one went through. And if you had shot—the first one we went to, where you said——

Mr. NEAL. Yes, sir.

Mr. HUNTER [continuing]. You didn't think it was an unfair shot.

Mr. NEAL. That is correct.

Mr. HUNTER. But the other ones you disagree that there was total penetration, and the last one it was just a problem with not having adhesive there, so the armor really down, slipped down, and you didn't have an opportunity to really test the armor is what you are saying.

Mr. NEAL. We had one row of disks that just dropped——

Mr. HUNTER. Okay.

Mr. NEAL [continuing]. Down probably that far, yes.

Mr. HUNTER. Okay. Thank you. And so we will take up those discrepancies with the Army when they come up. And I just say this, Mr. Chairman. Mr. Neal, you got some sets of this Dragon Skin, at least one or two sets available?

Mr. NEAL. Here.

Mr. HUNTER. I would like to see us take them down, while we are waiting for these sophisticated tests to be set up, take them down to the Marine Corps Warfighting Lab, break out an M14 with 7.62 armor-piercing and shoot it and see if it goes through.

Mr. NEAL. I would have to get some sent in.

Mr. HUNTER. Okay. That's not mission impossible, is it?

Mr. NEAL. No, sir, it is not.

Mr. HUNTER. I would like to see us do that. I think we could do that in short order. Anyway thank you, and I look forward to the Army's response on that. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you. We are going to go a bit out of order because the subcommittee chairman and the ranking subcommittee gentleman will be recognized each for five minutes, and then we will go in regular order.

Mr. Abercrombie.

STATEMENT OF HON. NEAL ABERCROMBIE, A REPRESENTATIVE FROM HAWAII, CHAIRMAN, AIR AND LAND FORCES SUBCOMMITTEE

Mr. ABERCROMBIE. Yes. Thank you, Mr. Chairman. Mr. Chairman, I have a statement for the record I would like to submit.

The CHAIRMAN. Without objection.

[The prepared statement of Mr. Abercrombie can be found in the Appendix on page 87.]

Mr. ABERCROMBIE. Thank you very much. Mr. Chairman, recently I was introduced to a group in Hawaii by someone who felt they wanted to give a good introduction to me, and so they did a little research on Wikipedia. And when I was introduced I could not recognize myself, because what was apparently in Wikipedia was so far removed from any of the facts surrounding my life or interpretations of the facts surrounding my life that it made no sense at all.

So I understand and perhaps have a better understanding now of Mr. Coyle's testimony inasmuch as he thinks Wikipedia is something that should be cited for careful documentation. And I quite agree with Mr. Coyle that he did not imply that the committee was not open-minded. He said it absolutely. He didn't imply it at all. In case he has already forgotten what he said, he said in the recent past this committee has not shown itself to be open-minded on issues raised by NBC. He was talking about the Active Protection System. But now we suddenly got into armor. He did refer to two hearings to denounce NBC for raising the issue, and those hearings did not engage the specific facts which NBC raised.

Well, I can tell you, Mr. Chairman, that the first hearing was held under the direction of Mr. Hunter as chairman of the committee, and he charged Mr. Weldon, who was chairman of the subcommittee, and I was ranking member, to follow through on what he has already enunciated today. And we did. And for those new members here who don't know Mr. Weldon, I can assure you—although Mr. Sestak I guess knows Mr. Weldon. Perhaps Mr. Weldon is not so happy about that today. But the plain fact of the matter is that I don't think anybody here who ever knew Mr. Weldon, and for those members who didn't know him, he was never hesitant about reaching out to get any kind of facts. And as I say, he did it under Mr. Hunter's direction. And he always involved the ranking member and the staff. That was me. And I can tell you we went to NBC, and by phone, calling, everything, trying to get them to come here to the hearing or involve themselves with the staffs so we could find out what was going on. And then when I became the chairman under Mr. Skelton, Mr. Skelton charged me and Mr. Saxton to do it. And I can assure you, again for new members who may not be familiar, this committee as a whole and the subcommittees to the best of my knowledge don't do anything except on a bipartisan basis. And I can say when I was ranking member for all

the time under Mr. Hunter of the committee, or just a member of the committee, our staffs and ourselves were always involved from beginning to end.

And the hearing that we held, the second hearing that Mr. Coyle refers to, which we held to denounce NBC, it is a little hard to denounce NBC when I asked Mr. Coyle to be a witness. So I don't know why he bothered to go through all the hearing if we were not taking everything up that was at point.

So I don't know—and today—and I want to finish with this—is that today we have been trying to get NBC to participate in some way. Where did you get the information? What are you referring to? Can you please let us know about the tests? NBC refuses to talk to us. The only contact I have had and Mr. Saxton has had with NBC is to watch some overpaid multimillionaire line reader show up on television, properly groomed and coifed and made up, to denounce this committee.

Now the reason that I am so exercised about it, and I think what needs to be said with as much emphasis as I can place upon it, is that we have the direct responsibility for the Armed Forces of the United States to prepare them in terms of equipment, in terms of proper personnel, and in terms of proper training to carry out the strategic interests of this country as is required of them when they are sent into the field and deployed. Everything and anything that is done by this committee is done with that in mind. It's not a Republican issue, it's not a Democratic issue, it is not an issue of contending with networks who, when they finish their discussion of the Active Protection System or the body armor, went on to their ads for erectile dysfunction or a murder or whether or not some celebrity slut was going to jail. So I am not interested in those kinds of things. What we are interested in is seeing to it that the men and women of the armed services have the best possible equipment, the best possible training, the best possible preparation for the tasks that have been assigned them.

Now, if the Army or anybody else has not been able to fulfill that obligation, that is fair and legitimate inquiry, Mr. Chairman. But that has not been the case. The Army has come forward in this instance, at least as far as I can tell from Mr. Saxton and myself, fully prepared to engage in the issue. And I am prepared to engage in the issue as your subcommittee chair, as is Mr. Saxton.

The CHAIRMAN. Thank you, gentlemen. Mr. Saxton from New Jersey.

STATEMENT OF HON. JIM SAXTON, A REPRESENTATIVE FROM NEW JERSEY, RANKING MEMBER, AIR AND LAND FORCES SUBCOMMITTEE

Mr. SAXTON. Thank you, Mr. Chairman.

The CHAIRMAN. Recognized for 5 minutes.

Mr. SAXTON. I would like to just pick up where Mr. Hunter left off, Mr. Neal. Mr. Hunter ran out of time just as he was getting to page 17 of the Army report, which has photographs of the vests that were taken after the Army tests, where the temperature was cycled with the vest from minus 25 degrees Fahrenheit to plus 120 degrees Fahrenheit. Do you have that page there with you?

Mr. NEAL. Yes, sir.

Mr. SAXTON. Okay. It shows that three of the tests were okay, but the test on the back, it says here that the first and second shot completely penetrated. Would you like to give us your version of why that happened? Or explain to us why that happened?

Mr. NEAL. I don't recall if there was a first shot penetration. I think there was a second and third shot complete penetration on those. I don't know the results on it. I do know that the armor performed well. The second and third shot penetrations, I don't know if it was on the—one was on the front and one was on the back, I am not too sure. I don't have that data here in front of me.

Mr. SAXTON. Are you saying that the information that the Army presented us was wrong, incorrect?

Mr. NEAL. No, I am not saying that. I am saying I can't recall whether the one that they are calling the first and second shot completes on the back, I recall the second and third shot, but I don't know if they were all on the back panel or one on the front and/or one on the back.

Mr. SAXTON. I am not an expert at reading x-rays, but it would seem that—it would appear that some of those disks had in fact delaminated in that picture. Would you agree with that?

Mr. NEAL. I don't know what has happened there. The disks are actually turned on side.

Mr. SAXTON. Yes, sir.

Mr. NEAL. Can I pull something up to show the members? I need to show you something, if you may, an example of the armor to explain what I need to do.

Mr. SAXTON. Sure. If you could just let me go on to one more question before we do that.

Mr. NEAL. All right.

Mr. SAXTON. On page seven there are two pictures, and other information relating to Interceptor Body Armor on the left and Pinnacle body armor on the right. And in his oral statement, Mr. Coyle mentioned that the Pinnacle body armor provides better coverage of the upper torso because it can wrap in places and there are no gaps. And in fact, these two pictures, it indicates that the coverage with the Pinnacle is 743 square inches, where with the Interceptor Body Armor the coverage is 720 square inches. I did a little math, and it shows that in fact the Pinnacle armor does provide about 3 percent more coverage in this instance. It also shows here that the Interceptor Body Armor weighs 28 pounds and that the Pinnacle body armor in this example weighs 47–1/2 pounds. And I will say that when the Army was here they actually brought two scales and hung these two vests on the scales and showed that those weights did register as such on the scales. And that would seem to me to indicate that there was a significant disadvantage. In fact, the weight was said to be 46 by the Army, 46 percent to 70 percent heavier with Pinnacle body armor than with Interceptor Body Armor. Would you speak to that?

Mr. NEAL. Yes, sir. The information that is on this PowerPoint presentation is misleading and incorrect. The coverage that they have there in square inches, which is as most people would assume it looking at that, would be considered the amount of coverage area to defeat rifle rounds. That is incorrect. The Interceptor Body Armor, with the front and rear plate and two side SAPI plates rep-

resents about 2.88 square feet of rifle-defeating coverage. The extra large vest which was ordered by Brigadier General Moran was an extra large full torso wrap with added disks at the top and the edge, which brought it to 5.45 square feet of rifle-defeating coverage. You are getting an apples and oranges comparison. The weight on that, if you will look in the document package presented to you, part A, where there is this picture right here, this is the actual three dimensions of the vest, the serial numbers, and handwritten on the side are the actual weights of the body armor as weighed the day of the test. There is nothing that weighs 47–1/2 pounds as weighed by the Army. The information provided in here is misleading. They are trying to tell you that 47–1/2 pounds, which is a pound and a half too heavy for an overloaded vest, which has more disks in it, as General Moran asked us to load it up, that is more than we would normally put in for a full torso wrap. And giving you a 5.4-square foot area of coverage, and trying it to compare it to 2.88, and breaking the weight down and calling that an apples to apples representation is a misrepresentation.

Mr. SAXTON. Thank you, Mr. Neal.

Mr. NEAL. You are welcome.

Mr. HUNTER. Could I take——

Mr. SAXTON. If I may yield to——

The CHAIRMAN. Yes.

Mr. HUNTER. Thank you, Mr. Chairman. I thank the gentleman for yielding. Mr. Coyle, you made the statement when you opened up you didn't see the Army test, you saw the test in Germany in which there was no penetration. And you concluded that therefore it appeared to test in your test in a way superior to the Interceptor. Is that right?

Mr. COYLE. That is correct.

Mr. HUNTER. Okay. Now that you saw the test in which Mr. Neal acknowledged that he was present, stood there, watched them shoot it, watched them shoot his package that he had given them, and the first shot or second shot had total penetration, which he acknowledges, would that change your conclusion that it is superior to the Interceptor? If you accept that as a valid shot?

Mr. COYLE. If that was a valid shot it certainly would raise questions in my mind.

Mr. HUNTER. Oh, really?

Mr. COYLE. Like questions you asked, which is how come, you know, the Dragon Skin stopped everything in Germany but didn't in the cases——

Mr. HUNTER. Okay. But if you had taken that and considered that to be the sixth shot, that was a seventh shot that was made——

Mr. COYLE. Yes.

Mr. HUNTER [continuing]. You wouldn't then have put in your report that you considered it to be superior to the Interceptor, would you?

Mr. COYLE. I would not have, no.

Mr. HUNTER. Okay. Thank you, Mr. Chairman. I appreciate it. Incidentally, before we go off this, I think every member of the committee is interested in having the very best. I think the flexibility is a value that you pointed out. When my son came into Iraq

the first time, coming over the berm out of Kuwait, his gunner was shot and fell back into him, and they had a tough time getting him out of the way and getting their guns operated, and we brought in some people to try to design a serapi-type of a covering that the gunner could wear on a Humvee, something that was heavier than the normal vest. It looks to me like this Dragon Skin may have some possibilities in that connection. I would like to explore that later when we are finished with this hearing.

Thank you, Mr. Chairman.

The CHAIRMAN. Mr. Spratt, five minutes.

Mr. SPRATT. Thank you both for your testimony. It seems a bit odd that, given the fact we have all kinds of testing facilities in this country, we would go all the way to Germany for conducting these tests. You know if any effort was undertaken by NBC or by yourselves, particularly you, Mr. Neal, to have the tests conducted here on some kind of reasonable parity basis?

Mr. NEAL. I was asked by NBC to provide body armor to do a comparative test. You will have to ask NBC with regard to why they chose——

Mr. SPRATT. You didn't have anything to do with selecting the German laboratory?

Mr. NEAL. No, sir.

Mr. SPRATT. Do you know why NBC made this decision?

Mr. NEAL. No. That, sir, you will have to ask them. I am not privy to that. Again, I was asked to bring the body armor to do a side-by-side comparative test, a level IV system, and I did.

Mr. SPRATT. You were present for one of the tests comparing your body armor with Interceptor Body Armor. Is that correct?

Mr. NEAL. No, I was at a First Article Test with the Army, and there was no comparison testing done.

Mr. SPRATT. Did you make or did anyone make any effort to find out what the testing protocols were and whether or not what was being done in Germany was consistent with what had been done by the Army to select between these two systems?

Mr. NEAL. I know that the testing that was done in Germany was to the ESAPI specifications, which is a level IV.

Mr. SPRATT. Yes, sir.

Mr. NEAL. That is what was done.

Mr. SPRATT. Mr. Coyle, it appears that both systems were reasonably protective for the first several rounds, and they began to break down around round five, round six. In particular the Interceptor, according to your tests, the German tests, seems to have broken down and allowed penetration at round number six. Does this assume that there is a certain cluster? Are these impacts clustered in the same area such that the cumulative impact finally penetrates the armor, or are the shots scattered over the whole surface of the armor, body armor?

Mr. COYLE. For the tests in Germany, the shot—the various shots were spread out. They didn't shoot twice at the same place, for example. If you have an opportunity to see the NBC presentation on this, you can actually see a technician at the German laboratory holding up a template as to where the shots are going to go. It is a fixed template that they always use.

Mr. SPRATT. The CEP so to speak was what, 6 inches in diameter?

Mr. COYLE. I don't know what the CEP was, but what they did at the laboratory is they held up the template with holes in the template where the bullet shots were going to go and marked those on the vest, and then they aimed at each one of those.

Mr. SPRATT. So they preselected where they were going to——

Mr. COYLE. Yes, they picked a template which is used for body armor testing, a standard template. It wasn't different for the NBC and they would have used for any other body armor test. It was just a standard template.

Mr. SPRATT. If the rounds weren't concentrated on one particular spot so that the cumulative impact finally defeated the system why does the cumulative impact of a wider scattering of rounds eventually produce a failure in the Interceptor system around round number six.

Mr. COYLE. I am not sure I can answer that question. It probably has to do with how cracks develop in the armor plates in those cases where armor plates are used. But it gets to be a quite complicated matter as to structurally why does something stop one or two or three bullets and then not a fourth or a fifth or a sixth.

Mr. SPRATT. Mr. Neal, Mr. Coyle, it has been proposed that there be a side by side, a formal test conducted with the Army's participation. Would you be satisfied if this test were overseen and conducted and established by an independent agency like the Government Accountability Office?

Mr. NEAL. Yes, sir.

Mr. SPRATT. That is suitable to you?

Mr. COYLE. Absolutely.

Mr. SPRATT. And you think this is where the matter should be taken next? Is that your testimony?

Mr. NEAL. I would like to see a third-party test, out of the hands and control of the Army and done with Office of Secretary of Defense.

Mr. SPRATT. What about NIJ? Would NIJ be an acceptable——

Mr. NEAL. I didn't hear that.

Mr. SPRATT. National Institutes of Justice. Would they be acceptable?

Mr. NEAL. Provided that it doesn't go to the same lab that was utilized last time, I have no problem with that. NIJ is a very credible source. NIJ developed a flexible body armor system for level III and IV this last year. The level III, which is even a more rigorous standard than the typical level III test, that not only is required to stop six instead of three rounds, as in the Army specification, but as the information campaign about Dragon Skin went out and misinformation was out that the Dragon Skin couldn't stop rounds at obliquities, the NIJ took the wherewithal to go forward develop a test protocol and procedure that added induced angled penetrations at specific locations that were said that it couldn't defeat to make sure of that. So it has induced additional angles into it. They have gone over and above as far as developing a flexible rifle-defeating body armor protocol and procedures, of which the level III one we have already passed, and we are getting ready to do the level IV. So I feel that they are more than capable of doing that.

The CHAIRMAN. I thank the gentleman very much. Mr. McHugh from New York.

Mr. MCHUGH. Thank you, Mr. Chairman. Mr. Neal, just seconds ago you repeated a rather unveiled accusation against the integrity of the H.P. White Laboratories. They are an NIJ-certified lab. Can you share with this committee any specifics as to how you feel they conducted the tests in a way that produced a prior conclusion and outcome? Because that would be a very serious charge, and I think we would want to follow through on that.

Mr. NEAL. Okay. What I mean by going to H.P. White Laboratories is the fact that I would like to see total autonomy pulled away from the current location where the military tests, to go to a complete different facility, to a complete different people doing the testing, and that——

Mr. MCHUGH. That is fine.

Mr. NEAL. May I finish my thought, please?

Mr. MCHUGH. Absolutely.

Mr. NEAL. H.P. White Laboratories, while I was there I did not see any wrongdoing. But you have to also realize that they are a laboratory, a civilian laboratory, and they will follow the discretion of the client or the customer who asks to do the test protocol and procedures. There is a lot of latitude given to the test director, and there was a lot of deviations taken from the protocol and procedures during the First Article Test. If you have got a test, as an example, that says you got to go from number one to number 10, in this specific order, you go from number one to number 10 and you complete the test. You don't do research and development, shot placement, specific shootings to try to come to an understanding of how you don't understand how an armor system works while you are doing the test. You do the test. If it passes, it passes. If it doesn't, it doesn't. Then you can go ahead and induce your research and development. But when you have a First Article Test and you start doing research and developmental testing on it during the test, that is incorrect. I don't have any——

Mr. MCHUGH. Are you accusing them of doing that?

Mr. NEAL. No, sir, I didn't say that.

Mr. MCHUGH. Then why would we bring this up? The answer then is, no, you don't. If you do—and I am not trying to catch you in a prevarication. I am stating, and why don't we leave it with this, if you have specifics against this lab that we rely upon for accurate results, then I would strongly encourage you to bring them forward. I can understand your interests, because your article failed the lab test. And you want to have another test at a different facility. And I don't question that. That is fine. But what I am worried about is the very clear suggestion you made that this laboratory that we rely upon may conduct itself inappropriately. So I am just going to leave that part of the question. And if you can detail that, please share it with us, because I think it is something that is critical and needs to be pursued.

Having said that, Mr. Coyle, in your testimony you said from the outset it was apparent NBC would not have the capacity to conduct full scale body armor tests, etc. Why was that obvious? Why were they not able to do that?

Mr. COYLE. The tests that NBC conducted in Germany were done in one day. The setup took longer than that, because that is what happens when you do a test.

Mr. MCHUGH. Then they were not able to because they chose not to?

Mr. COYLE. Exactly.

Mr. MCHUGH. Did they discuss this with you? You are an expert in the field. You understand the need to fully test under the other circumstances, the temperature, the salt water, the diesel fuel. Did you talk to them about that? And if so, what kind of explanation did they provide?

Mr. COYLE. Those kinds of tests are quite difficult and expensive to do, high temperature, low temperature, salt water, all of those things, and expensive to do. And in fact the Army itself, General Brown in his press conference the other day pointed out that the Army itself puts off those tests when they are testing body armor because if it is going to fail the easier tests, so to speak, they don't want to spend the money on the more difficult tests. So I think it was really a matter of time and resources.

Mr. MCHUGH. Do you feel—you stated repeatedly, or at least gave the suggestion that Dragon Skin met Army standards. And I think what you would mean to say is at ambient temperature only; is that correct?

Mr. COYLE. And that is what I say in my testimony, yes.

Mr. MCHUGH. Do you feel the other tests are irrelevant, that they shouldn't be conducted? If indeed the slides that have been shown to you as to what the Army describes as catastrophic failures of Dragon Skin, through a variety of the varying testing environments, if that was indeed the case, what would your conclusion be as to that being the preferable system?

Mr. COYLE. The other tests are very important, tests at high and low temperature, with diesel oil, motor oil, salt water, all of those other tests are very important, and I would not say that they are irrelevant at all. Quite the contrary, they are very important and need to be done. My point was only that NBC didn't do them. You can quarrel that maybe they should have spent more of their money doing a wider slate of tests, but they didn't. But no, those other tests are very important, and I think really only the Army can do that. I think the Army Test and Evaluation Command can do those tests just fine.

Mr. MCHUGH. All right. Well, just if I may, Mr. Chairman, to close, I have no interest in seeing one manufacturer over another. Like every other member, we need to procure the best. And I want to echo the statements of my colleagues, that is the critical interest and the only objective of this committee on a bipartisan basis. And if it is one system or another we should buy the best.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you, gentleman. Mr. Taylor, the gentleman from Mississippi.

Mr. TAYLOR. Thank you, Mr. Chairman, and I want to thank the gentlemen for being with us, and I appreciate your interest in this. Mr. Coyle, I have got to admit that you have confused me. I thought I heard you in the beginning say that the Army had performed an unfair test, that the test that NBC had performed was

more accurate, and just a minute ago I thought I understood you to say that the Army had performed a very good test, that the conditions that they subjected the body armor to were what they should have. And so I am going to give you the opportunity to clarify for me which is it? And one other thing. I have got to admit that when I first saw that the Army had subjected this to diesel and motor oil and very huge temperature changes, it was one of those moments where you go, gee, that is brilliant. Because they are going to get soaked with diesel fuel, they are going to get soaked with motor oil, and yes, when you go from the valleys of Afghanistan to the mountains of Afghanistan you are going to have huge temperature differences. So that makes perfect sense.

So I want to give you, number one, tell me which of your statements did I get wrong? And the second one is what tests have we missed that you would include in a fair comparison?

Mr. COYLE. Mr. Taylor, I did not say that the Army conducted an unfair test. There is nothing in my testimony that says that the Army conducted an unfair test, and I am sorry if you got that impression, because I never intended anything of the sort. The tests that were conducted by H.P. White, I wasn't there, I can't say what happened. So I am not even in a position to say they were unfair. I wasn't there and wouldn't say so, not having had that opportunity.

I did raise some questions in my written testimony, which I did not go into in my oral testimony, about the briefings that we have been talking about. But I think Mr. Hunter and others have already gotten to those questions with Mr. Neal. So my point was simply that the tests that I observed in Germany showed that Dragon Skin was at least equal to Interceptor, if not better.

Mr. TAYLOR. Mr. Coyle, again let's—again I think the Army did us all a favor by doing what I think is a more accurate test. I do think a soldier, sailor, Marine is probably going to get diesel splashed on him at some point, probably going to get motor oil splashed on him at some point. It is going to stay with that vest for the life of that vest. And yes, they are going to be exposed to extreme temperatures. And again, that is the reality that we have to deal with.

Did you have a problem with any of those other factors being included in the Army tests?

Mr. COYLE. Not at all. And I don't why you would think that I would, because obviously all of those factors are important, and the Army standards have to be met by any company that makes body armor.

Mr. TAYLOR. Do you question the validity then of the Army results that reported penetrations in the Dragon Skin?

Mr. COYLE. I have no basis to question them. I wasn't there.

Mr. TAYLOR. How about you, Mr. Neal, because I thought I heard you say that those weren't penetrations?

Mr. NEAL. Mr. Hunter, Mr. Duncan Hunter brought up—he brought me to specific pages, pointed at specific x-rays. And as I elaborated in those specific x-rays, if you will look on the motor oil exposure, for example, it shows a big red circle, and it says right there, it shows where it is supposed to be a penetration. It is clearly evident that right there is a projectile core. If the projectile core

is there, it did not exit the armor; it was not a complete penetration. Likewise—excuse me, sir.

Mr. TAYLOR. No, because I am trying to learn something here and I need to be asking the questions.

Mr. NEAL. Okay. All right.

Mr. TAYLOR. All right. So we have a discrepancy as to whether or not it was a penetration. But was the impact in the indentation enough to have caused a fatality, even if it wasn't a penetration?

Mr. NEAL. No, sir. All of the blunt trauma Back Face signatures, Back Face deformations on the Dragon Skin system have always been between 50 and 62 percent less than any current plated system today manufactured, whether it be military or commercial.

Mr. TAYLOR. So why would the Army in this official publication call that a penetration?

Mr. NEAL. I have absolutely no idea why they would do that. It is just like the same thing that I started to go to, which I got sidetracked on with Mr. Hunter——

Mr. TAYLOR. Mr. Neal, let's bring this back to reality. Are you telling me if you were wearing this vest that had been subjected to this test and that round hit you in the chest, would that have killed you or not?

Mr. NEAL. No.

Mr. TAYLOR. And you stand by that absolutely?

Mr. NEAL. Yeah, because the bulletis sitting right there in the body armor. Yes, sir. The other thing I was trying to get to is if you look, there is actually three briefs provided in your package. You will see on the high temperature on one brief they show first shot complete penetrations on all of it. On another brief they only show it on three of them. There is a lot of discrepancies between various briefs that have been handed out. And to me, when you start having discrepancies in information handed out in briefs, and it doesn't matter whether it is to all of you people here or whether it is to a military person, to a mother and father in the field or to a law enforcement, you can't give different data for different audiences. That is providing disinformation to them. A lot of this is played upon what people don't know. Nobody caught any of this stuff with the bullet still stuck in the x-rays. Why would the Army put an x-ray up there that clearly shows a projectile defeated on the armor, call it a defeat when—I mean a complete penetration when it was not? That is just like the information provided on the weight. You got coverages wrong. Nothing jives. Nothing makes sense. And if you are going to cover something as important as a safety issue to protect people's lives, you at least need to get it accurate. That is why I am saying and I am asking for an independent test, because the information coming out from the Army is fraught full of inaccuracies. And that is not how it happened. That is all.

The CHAIRMAN. Thank you, Gentleman. Mr. Miller from Florida.

Mr. MILLER OF FLORIDA. Thank you, Mr. Chairman. Mr. Neal, going into the first test with the Army, what were your thoughts about the integrity of the test? Did you feel—prior to any testing taking place, did you feel that the lab was a credible lab, that you were going to be given an opportunity for a fair test and fair results?

Mr. NEAL. I have tested before at H.P. White Laboratories. We have done some certification testing from them in the past and we have had no problems with them. The issue as far as whether I thought I was going to get a fair shake, if you will, out of that, I had trepidations. And trepidations were because of prior testings conducted there. Not so much——

Mr. MILLER OF FLORIDA. Testings by who and what?

Mr. NEAL. Right. That is what I am going to get to. Testings that were conducted in 2005 which the Army has retroactively gone to as saying that was the reason for their issuance of the Safety of Use Message, where there was a test conducted for the Marine Corps on side panels for at that time the Marine Corps, for them to use side plates, or we provided panels—where the testing was conducted again at the same laboratory, however again it was conducted with Mr. James Zheng defining how the armor was going to be shot. Mr. Michael Codega for the Marine Corps was the test director for that. In that, and the documentation is provided in here as submitted by H.P. White Laboratories, it does show that the armor met the requirements.

Mr. MILLER OF FLORIDA. If I could interrupt, because I only have just a few minutes to ask questions, did you raise any of these issues prior to the tests taking place?

Mr. NEAL. Yes, I have. And as I was instructed when we got there—there were five different rooms where things were. I was only allowed to be in one room at any given time during certain events and during the testing. And I was invited there and I was——

Mr. MILLER OF FLORIDA. No, what I am talking about is prior to you getting there for the test, you raised those issues before you got there?

Mr. NEAL. In the meeting with the Brigadier General Moran, I said, you know, we have had some issues in the past. I said I just want to make sure that——

Mr. MILLER OF FLORIDA. You had some issues or you saw some issues?

Mr. NEAL. I saw some issues.

Mr. MILLER OF FLORIDA. You hadn't had issues in the past?

Mr. NEAL. No, sir. That there was issues in the past with testing——

Mr. MILLER OF FLORIDA. You said we. I am sorry, you said we have had issues in the past with the lab.

Mr. NEAL. What I meant was our equipment tested at that lab for the Army or the Marine Corps, with the Army and the Marine Corps directing how the tests are to be conducted, we have had issues, and I wanted to make sure that this would be a non-issue test, fair and unbiased, yes.

Mr. MILLER OF FLORIDA. And was it?

Mr. NEAL. I would not say so, because research and development went on, and it should have been a First Article Test.

Mr. MILLER OF FLORIDA. Is it your intent to impugn the integrity of the Army?

Mr. NEAL. There were individuals working for Natick——

Mr. MILLER OF FLORIDA. Is it, yes or no, your intent to impugn the integrity of the Army?

Mr. NEAL. I am not saying that.

Mr. MILLER OF FLORIDA. Can I ask you a question on a press release that you issued on the 30th of May and ask you why you needed to put in the press release that there were concerns from military families that the Army has manipulated tests on body armor? That was in your press release, correct?

Mr. NEAL. Yes, sir.

Mr. MILLER OF FLORIDA. And is involved in a coverup similar to recent Walter Reed, Trophy Missile, Pat Tillman and Jessica Lynch scandals that have resulted in multiple investigations, congressional hearings and proposed punishment, retirement and demotion of several top Army officials.

What was the purpose for putting that in your press release?

Mr. NEAL. That was information provided to me by the families, and that was their concern, and basically I was stating their concerns.

Mr. MILLER OF FLORIDA. Not to impugn the integrity of the Army?

Mr. NEAL. No, sir. I am just stating their concerns.

Mr. MILLER OF FLORIDA. But it is on your letterhead, Pinnacle.

Mr. NEAL. Yes, sir. It was a press release. I am trying not to hold——

Mr. MILLER OF FLORIDA. So you adhere to the accuracy of this press release?

Mr. NEAL. Yes, sir. I am representing what they——

Mr. MILLER OF FLORIDA. Then on the second page you say that Defense Assistant—former Assistant Secretary of Defense Philip Coyle participated in the test, rated Dragon Skin far superior. Is that correct?

Mr. NEAL. Yeah. I would say it was far superior.

Mr. MILLER OF FLORIDA. Why did Mr. Coyle just say it was equal, if not better, and did not say far superior?

Mr. NEAL. You will have to ask that to him, sir.

Mr. MILLER OF FLORIDA. Mr. Coyle.

Mr. COYLE. I don't believe I have ever used the phrase "far superior." It is not in my testimony, written or oral. I did say that I thought the tests in Germany that I observed showed that Dragon Skin was better, especially against multiple shots and against more lethal threats.

The CHAIRMAN. Thank the gentleman. The gentleman from Arkansas, Dr. Snyder.

Dr. SNYDER. Thank you, Mr. Chairman. Mr. Chairman, if I might, I would like to have submitted for the record a statement from John D. Grant from Pearcy, Arkansas, in Congressman Mike Ross' district, who had a son serve in the military, and would like to have his statement submitted for the record.

The CHAIRMAN. Without objection, will be submitted for the record.

[The prepared statement of Mr. Grant can be found in the Appendix on page 92.]

Dr. SNYDER. Thank you. Mr. Neal, pursuing a little bit along Mr. Miller's line from your—I had not seen your written statement until this morning. I don't know if it was here or not. But on page eight interesting you state the following. Quote, "Some of the dads

who have come to see me seeking Dragon Skin for their sons and daughters in harm's way believe that there is some sort of conspiracy going on to keep better body armor off the market. I don't want to believe that, but H.P. White Labs in Maryland had an explosion and fire shortly after NBC sought to get some Army test data. I do find that interesting," end of quote.

That is from your written statement. Are you making an allegation that there was some kind of an explosion or fire set to somehow kind of cover up evidence or to get rid of test results? Do you have any evidence that this committee or our government or the FBI ought to have that warrants some kind of a criminal investigation of this fire or explosion that you refer to?

Mr. NEAL. I am sorry, could you say that one more time, please?

Dr. SNYDER. You make an allegation or make a statement here that you find it interesting that there was an explosion and fire shortly after NBC sought to get some Army test data from H.P. White Labs. Do you have any evidence or information that this committee—or you should be turning over to the FBI or any law enforcement agency with regard to an allegation that there was some kind of a fire covering up the destruction of test data at H.P. White Labs?

Mr. NEAL. I don't have anywhere written in here that it covered up or destroyed any test data, sir.

Dr. SNYDER. I just read to you what you said, Mr. Neal. This is an inflammatory statement. "I don't want to believe that, but H.P. White Labs in Maryland had an explosion and fire shortly after NBC sought to get some Army test data. I do find that interesting." Well, I think it is pretty clear what the innuendo you are trying to make. But you are saying you don't have any evidence that there was any kind of criminal activity that went on in regard to that fire. Is that correct?

Mr. NEAL. No, sir.

Dr. SNYDER. Mr. Coyle, it is not clear to me—one of the concerns I have is the difference in the Army testing on the Interceptor Body Armor, between what the Army does and what you all demonstrated in Germany. Is it clear to you that the Interceptor Body Armor that was tested in Germany is identical to what our troops use?

Mr. COYLE. No, sir. I did not, you know, go to the factory where Interceptor is built. I think in both instances Mr. McGee and Mr. Neal each brought the best they had. I think they both wanted to do as well as they could.

Dr. SNYDER. Mr. McGee was—I think wanted to be here but was unable to be here today, had a conflict——

Mr. COYLE. Right.

Dr. SNYDER [continuing]. And submitted a statement. He states in his written statement with regard to the NBC test, the soft body armor Interceptor vest and the ESAPI plates were made by Protective Products International, PPI, in Sunrise, Florida. Maybe Mr. Chairman and staff can help with this. It is my understanding that is not one of the vendors that supplies the Interceptor Body Armor. Is that correct?

The CHAIRMAN. I could not answer that. The staff says that is correct.

Dr. SNYDER. So were you aware when you did this comparison involving this comparison testing that you were comparing the Dragon Skin to a Interceptor Body Armor that is not currently being supplied—that was not supplied by one of the vendors that is currently supplying the military?

Mr. COYLE. No, I was not, and I still couldn't speak to the pedigree of either sets of body armor that were tested.

Dr. SNYDER. And in fairness to Mr. McGee, he should have an opportunity to submit any kind of statement for the record in response to that since he is not here.

Mr. Neal, one of the concerns I heard about, one of our members that has a military base in their district, is that since the NBC report that there is a very active solicitation going on to sell Dragon Skin to the families of people in Iraq. Is that correct? Since the NBC report? Are you doing a solicitation of military families to buy your product?

Mr. NEAL. No, we don't solicit any families to sell our product. In fact, we—any of this, you know, all of the stuff that has been brought on by the media and all that, that isn't us. We haven't paid for anything. All of the TV stations, like Modern Marvels, Test Lab, Future Weapons, Mail Call, they have all come to Pinnacle. The only thing we have done is supplied the armor to be shot. We don't do that, no.

Dr. SNYDER. Let me ask you a question. Mr. Coyle, why do we call the Dragon Skin—help me with this technical question here—why do we call the Dragon Skin an example of a flexible? Do you use that word when you refer to the Dragon Skin?

Mr. COYLE. Yes.

Dr. SNYDER. I don't understand that. When I picked it the up the other day, it didn't seem flexible. If those little plates are glued to each other, they are glued to each other. Do they have movement in those joints? Why do we call that flexible? Aren't they glued into a solid piece?

Mr. COYLE. Well, Mr. Neal can speak better to the construction, but it is flexible in the sense that it can bend around you. Whereas the solid plates that the Army uses that fit into pockets are solid like a board and don't bend. I agree with you that it is not as flexible as a jacket or something might be.

Dr. SNYDER. It seems like if it had give, the adhesive would be having some——

The CHAIRMAN. Thank you.

Mr. Franks.

Mr. FRANKS. Well, thank you, Mr. Chairman, and thank you, gentlemen. You are aware that we have had testimony from the Army that is what in contradiction to some of the testimony we have heard today. And I don't think any of us here have any motivation other than trying to give our soldiers the very best that we can give them. And I am sure that, you know, that both sides believe that they are correct. But you know, the bottom line is that the truth always has the last word. And it is just perhaps a little bit unusual, the suggestion, Mr. Chairman, but we have got a gun range in the basement of this building. And I think we ought to take a couple of sets of both sets of this body armor and have both sides have a sworn affidavit that this is indeed the exact armor

that is going into the field, and that we all go down and have some experts there to make sure that the tests are fair, and witness this for ourselves. Because, you know, I have to say to you that many times expert witnesses and expert testimony only confuses those of us who are not always experts. But I would like to see this for myself. And I would like to suggest to the chairman that the ranking member is correct, that Mr. Hunter has got the best idea for us, to go down and see this for ourselves. We don't even have to let the media in. We can talk to them afterwards. But let's test this out and get to the bottom of it and do what's right for the soldiers of this country. And I just wonder if you would be interested. We will use the same guns, same 7.62, same box of cartridges, or several of them, to make sure that everythingis as fair as possible, and shoot both sets front and back and see whether or not we can get a clear picture of this.

Would the gentleman be amenable to that or does that sound entirely too straightforward?

Mr. NEAL. No, sir, I would go for that. I have no problem with that.

Mr. FRANKS. Sometimes something so common sensical is not embraced readily. But Mr. Chairman, I would leave that for your consideration, and hope that perhaps we could just simply check it out ourselves, if for no other reason—not to solve this controversy on a broader picture. That is probably going to take a while. But I think it would be good for this committee to witness for ourselves the performance of this equipment for the sake of our soldiers. And that is pretty much all I have, Mr. Chairman.

The CHAIRMAN. Thank you very much. We do know that any test would be under the same conditions such as temperatures, what it is soaked in and the like.

Ms. Sanchez.

Ms. SANCHEZ. Thank you, Mr. Chairman, and thank you, gentlemen, for being before us today. I have a couple questions, first of all for Honorable Coyle. Just to reiterate what I heard you say from the last couple of my colleagues, you are not sure that the Interceptor Body Armor that was tested by NBC is actually the same one that we test and we use on our Army and other service members?

Mr. COYLE. That is correct.

Ms. SANCHEZ. Okay. And the room temperature conditions that NBC tested are not the same as the ones that we use in the tests that the Army has been conducting?

Mr. COYLE. The Army does require ambient room temperature tests, but then they do more than that.

Ms. SANCHEZ. But with a broader array of different conditions?

Mr. COYLE. Yes, ma'am.

Ms. SANCHEZ. Okay. For Mr. Neal.

Mr. NEAL. Yes, ma'am.

Ms. SANCHEZ. Have you ever responded to an RFP by our military services to put this armor on——

Mr. NEAL. Yes, ma'am, I have. And in the documents package I provide at least five examples of responses to requests for proposals by the Army, by the Marine Corps, by——

Ms. SANCHEZ. But you have responded?

Mr. NEAL. Yes, ma'am.

Ms. SANCHEZ. To the Army?

Mr. NEAL. Yes. In the pack——

Ms. SANCHEZ. You put forward to an RFP by the Army?

Mr. NEAL. Yes. I have the RFPs that we responded to, as well as the submissions that we put in there. Every time that we submitted we have been declined because we fail to submit to the spec, and the specs calls for rigid plate systems. We have said that we don't have a rigid plate system, we have a flexible system. But they don't allow for alternates. They are not looking for anything other than a rigid plated system, and so we fail to get anywhere every time.

Ms. SANCHEZ. Are you aware of anybody else in the services who uses something other than rigid plate?

Mr. NEAL. No, ma'am.

Ms. SANCHEZ. Mr. Coyle, do you know of any other service that uses, any other service members, any special teams that uses anything other than?

Mr. COYLE. Well, I think Mr. Neal could tell you who has bought his armor. That is not an area where I am an expert. But I believe he has sold his armor to, you know, to officials in a number of agencies, including armed services, that are mentioned in my testimony.

Ms. SANCHEZ. And Mr. Neal——

The CHAIRMAN. I thank the gentlelady. Go ahead and finish your question, please. Finish your question, please.

Ms. SANCHEZ. I just had one last question for Mr. Neal. If you are not actively soliciting our military families for them to buy this armor, then what great means of communication are you using to get this armor into their hands?

Mr. NEAL. They e-mail us. They call us. They want to know information about the armor, how they can get it. We tell everybody that there is a Safety of Use Message out there. And now that the Marines have put out their directive, we let everyone know about that. We don't hide behind anything. People call us. They just aren't feeling comfortable, or their sons that are over there are asking that they look into procuring the Dragon Skin because what they are seeing in the theater from guys that have been shot, they are overly impressed with it.

The CHAIRMAN. I thank the gentlelady.

Mr. Jones.

Mr. JONES. Mr. Chairman, I will be short, because I had to be out for about 45 minutes, and I am sure that I can't add much more to whathas been said. But I would say to Mr. Neal, I read your comments about you said—and I hope you feel differently when you finished today—you said I would be remiss if I didn't tell you my deep disappointment and concern in coming here. Let me say as a Congressman that has been here for 14 years, and I represent Camp Lejeune Marine Base, and God bless our Marines and our men and women in uniform, it is very difficult for us who go home every weekend, and most Members do in Congress, you might be in the grocery store, you know, for some reason, or a drug store, and someone will come up, and they have seen the NBC show about the body armor and what works and what does not

work, and this hearing is critical. And I want to thank you for your participation, as well as Mr. Coyle, for this reason. And the next panel I look forward to hearing from as well.

You know, it is hard. I actually I don't tell you this for any other reason except I want you to understand my passion for giving the best to our men and women in uniform. I took it upon myself three years ago, because of my regret for voting to give the President the authority to go into Iraq, I write every family in America that has lost a loved one. When you fight to end extensions of families, we have sent over 6,400 letters that I have personally signed. So my being here, Mr. Chairman, is I want to make sure that, as every member of this committee does, that our men and women will never have to call their moms and dads or their friends or their wives or their husbands and say help me purchase this type of armor because this is the best. This government owes our military men and women the very best. And it should not be any second-guessing of what is the best for our men and women in uniform.

And with that, Mr. Chairman, I will yield back my time.

The CHAIRMAN. Thank you very much. The gentlelady from California, Ms. Davis.

Ms. DAVIS OF CALIFORNIA. Thank you, Mr. Chairman, thank you all for being here. I wanted to just go to the issue of testing to a standard and trying to understand that a little bit more. And Mr. Coyle, in your opinion—you have obviously been involved in this on many occasions. Is that always the case? Have you participated in tests where there is a side by side test, where it is actually something that is going out in the field or going to be used in some fashion? How unusual is it to have that kind of side by side test? And do you think that is a better way of taking a look at this issue?

Mr. COYLE. Yes, Ms. Davis, I have observed, participated in side by side tests. The Army does do them. Of course both sides, so to speak, have to meet the standard. But side by side means more than just testing to a standard. It means under the same conditions at about the same time. For example, the tests a year ago conducted for the Army, a year ago last May, were not side by side tests. They were tests of the Dragon Skin. And I don't know what would have happened if the Interceptor had been in those same tests, tested exactly the same way. So it is what makes it so difficult to compare all of this.

Ms. DAVIS OF CALIFORNIA. Mr. Neal, have you been involved in tests in the past where you would say it is an accurate and appropriate side by side test, or have you generally seen more of the testing to the standard?

Mr. NEAL. We do both. Where we get called to do side by side tests is because an agency or an entity feels that they really want to make a decision, and they want to just test it for themselves right there, aside from any protocol and procedures, the way that they feel it would be shot on the street or, you know, in a battle zone or whatever. And they just want to grab a rifle, whatever, shoot it, detonate something against it, do these types of tests. So it is not conducted in any specific way. It is just wild and random like it would be on the street. That type of thing. And that is why they kind of do those.

Ms. DAVIS OF CALIFORNIA. You mentioned one of the real discrepancies here is the weight, and whether or not the tests in Germany were identical to the tests here in the States, especially concerning the weight issue. And is that something that you can actually get to and determine that yes, in fact, you know, any one individual carrying this vest is going to be the same as another individual? I mean obviously weights are—individual personal weights are different as well in terms of the way people carry themselves. I am just wondering is there a problem here in terms of really determining that? And the other question would be whether you can test with a moving individual essentially, and does that make a difference? Because clearly if something is so heavy that someone can't move quickly enough they could be caught in the crossfire and otherwise would not have to be if they had that mobility. So how do you see us being able to accurately diagnose that situation?

Mr. COYLE. And I think that is a place where the side by side tests could help. You would think a simple matter like comparing weights shouldn't be that difficult. But the vests that we used in Germany, that were used in the tests in Germany, there wasn't the kind of weight difference that the Army reports. Now maybe something has changed in the past year that I don't know about. I can't explain it. But a fair comparison just of weights, forget about other measures, would be same level of threat, you know, same size person wearing it, all of that.

Ms. DAVIS OF CALIFORNIA. Were you aware that the weight differences were quite different? Did you have any knowledge of that going in, that perhaps they had said this was 47 pounds versus 27 or whatever? Were you aware of that and did you ask any questions about that?

Mr. COYLE. I had seen that on the Internet and news reports. I didn't have any firsthand knowledge, but I had seen it in the news and all. And for exactly that reason, the ballistics lab in Germany weighed them, which they would have done anyway, because that is their normal protocol. So whether we suggested they would have been weighed or not, the lab would have done it anyway and did.

Ms. DAVIS OF CALIFORNIA. But in weighing them, were they weighing them as if they were being used in the field under those same circumstances? Was there any way of getting a handle on that particular specificity?

Mr. COYLE. As I said, they did weigh them, and there was a difference. Dragon Skin was a pound or so heavier. But not the 19 pounds the Army reports, which may have been correct a year ago because of what they compared then. But again it may have been an apples and oranges comparison. I just don't know.

Ms. DAVIS OF CALIFORNIA. Any particular insights as to why this was done at the German lab?

Mr. COYLE. You would have to ask NBC that. But I think one of the reasons they chose that lab is because it has a very good reputation, you know. They did it to typical German detailed standards.

Ms. DAVIS OF CALIFORNIA. Thank you.

The CHAIRMAN. Thank the gentlelady. The gentleman from Texas, Mr. Conaway.

Mr. CONAWAY. Thank you, Mr. Chairman. Back to a question that Ms. Sanchez asked. Has Pinnacle participated in all the full and open competitions since 1999 for body armor?

Mr. NEAL. We haven't been able—well, we didn't compete to all them because when I guess Commerce Business Daily changed, and then now it is FedBizOpps, we missed a transition there.

Mr. CONAWAY. Okay.

Mr. NEAL. I can't tell you if we have participated in everything that has gone out, but we have participated in a substantial amount of them.

Mr. CONAWAY. All right. Apparently we are artfully choosing our words. Is there an open competition going on right now? And if so, are you participating in that?

Mr. NEAL. I can't think of the entity, we put that pack in here as well.

Mr. CONAWAY. Is the answer yes or no?

Mr. NEAL. Yes, we have responded to it, yes.

Mr. CONAWAY. So you are participating in that?

Mr. NEAL. We are still waiting on a response, whether there will be an accepted allowance for a flexible system instead of a rigid system.

Mr. CONAWAY. I am a CPA, so I don't know a lot about ballistics, but I can weigh things. And I am still trying to understand how we can get a 19-pound differential. Let me ask a question. You have referred to level III protection. And I am assuming that we are really wanting level IV protection. So the page seven shows a large for Interceptor Body Armor, with an asterisk saying that the extra large on the Pinnacle is the equivalent, because some clothes are measured differently. Can you see the body armor for your Dragon Skin? Does that not weigh 47 pounds in that configuration?

Mr. NEAL. No, sir. As weighed it was 46.1 pounds. And that was an extra large with more disks in it than our full torso wrap, which is our maximum coverage.

Mr. CONAWAY. Okay. You mentioned a while ago the coverage on the IBA was 2.8 square feet?

Mr. NEAL. Approximately 2.88 square feet, yes.

Mr. CONAWAY. Seven hundred and twenty square inches is five square feet. So that is——

Mr. NEAL. What the inches are in coverage here is the OTV component measurement, not rifle-defeating component.

Mr. CONAWAY. And your rifle-defeating component is 743 square inches?

Mr. NEAL. No, in this one here it is 5.4. That is what I am saying is——

Mr. CONAWAY. Five point four square feet is marginally more than 743 square inches.

Mr. NEAL. Yes, sir, it is.

Mr. CONAWAY. I mean, well, 743 square inches is a 5.15 square feet. So you are saying it really should be 5.4 square feet?

Mr. NEAL. Yes.

Mr. CONAWAY. Okay. Several times during your——

Mr. NEAL. But there is no way 2.88 square feet is in here. That is why I said it is kind of——

Mr. CONAWAY. Okay. We will get the Army up.

Mr. NEAL [continuing]. Misleading.

Mr. CONAWAY. Okay. You mentioned several times that the lab at H.P. White did some R&D testing in the midst of the regular scheme of the tests, and that bothers you. Did it distort the results in your mind? I mean what bothers you about that?

Mr. NEAL. The research and development testing that went on was under the discretion of either Mr. Zheng or Mr. Masters. They just were following out orders as given to them. And yes, it does bother me, because when you do a First Article Test you are there to test the product, not do research and development during the test.

Mr. CONAWAY. How did it distort the test?

Mr. NEAL. Well——

Mr. CONAWAY. Okay. There are First Article Tests, X steps. How were those test steps distorted by at the same time doing these other R&D tests?

Mr. NEAL. Well, take eight of the penetrations that the Army claims where Mr. Zheng shot it through the textile component and didn't even impact the Dragon Skin disks. So it wouldn't have stopped it anyway.

Mr. CONAWAY. So you are saying the lab took R&D tests and folded those over into the First Article Tests as if were part of that test?

Mr. NEAL. I am not saying the lab, I am saying Mr. Zheng did.

Mr. CONAWAY. Who is Mr. Zheng?

Mr. NEAL. He is a gentleman that was there with Mr. Masters, running the shots and where the shots would go.

Mr. CONAWAY. Who does he work for?

Mr. NEAL. Natick.

Mr. CONAWAY. Who?

Mr. NEAL. Natick.

Mr. CONAWAY. Who is that?

Mr. NEAL. That is a research and development body in Natick, Massachusetts.

Mr. CONAWAY. Who are they affiliated with?

Mr. NEAL. The Army.

Mr. CONAWAY. So the Army owns them?

Mr. NEAL. As far as I know, they do.

Mr. CONAWAY. Okay. With respect to the makeup of your market, how much of your body armor levels II and III—help me understand. You sell to law enforcement agencies and CIA and other kinds of folks who don't need a combat field version of your body armor. What is the breakup in your market between—if you know off the top of your head?

Mr. NEAL. Well, we sell—if I could do a clump, if you will, if I can go——

Mr. CONAWAY. What is a clump?

Mr. NEAL. Clump them together. It is probably easier for me that way to do, like military, Federal entities and law enforcement, and then like State and local, that kind of a deal.

Mr. CONAWAY. Okay.

Mr. NEAL. Right now I would say we probably have about a 45 percent share would be DOD, probably 30, 35 percent of it, roughly,

would be Federal, and then the balance would be State, local law enforcement, SWAT entities, that type of thing.

Mr. CONAWAY. You are selling 45 percent of your gear to DOD?

Mr. NEAL. To people who order it for use over in Iraq or Afghanistan, yes.

Mr. CONAWAY. So the DOD is ordering it for use in Iraq right now?

Mr. NEAL. Individuals are.

Mr. CONAWAY. Individuals?

Mr. NEAL. Individual soldiers.

Mr. CONAWAY. The Department of Defense is not doing that?

Mr. NEAL. No, I said clump it together. What I am saying is, all right, military related, that sort of thing.

Mr. CONAWAY. You said Department of Defense is buying 45 percent of your stuff. And that is not——

Mr. NEAL. I didn't mean department, I clumped it.

Mr. CONAWAY. I understand.

The CHAIRMAN. I am not quite clear. Forty-five percent of your market is sold to whom?

Mr. NEAL. To people in the military.

The CHAIRMAN. Who writes the paychecks to you? The Department of Defense? Army? Navy? Air Force? Marines?

Mr. NEAL. We have had them from various branches of the military as well as DynCorps, Department of State.

The CHAIRMAN. You said DOD.

Mr. NEAL. As I said, I clumped them in.

The CHAIRMAN. Unclump them for me. You are within the Department of Defense. If you can say, who in the Department of Defense buys your system.

Mr. NEAL. The Army buys from me. I have had the REF buy from me. Rapid Equipping Information. REF. I have had the Navy buy from me. And I have had the Air Force buy from me. Those are the——

The CHAIRMAN. In great quantities?

Mr. NEAL. We have had quantities of about 680, 700 units at a time, yes, sir.

The CHAIRMAN. Thank you.

The gentleman from Georgia, Mr. Johnson.

Mr. JOHNSON. Thank you, Mr. Chairman.

Mr. Neal, I would suppose that all of the free publicity that has been generated about the Dragon Skin——

The CHAIRMAN. Would the gentleman get a little closer to the microphone?

Mr. JOHNSON. I would imagine that all of the free publicity that has been generated about the Dragon Skin armor system has been good for the company; isn't that true?

Mr. NEAL. It is a double-edged sword.

Mr. JOHNSON. Sales have increased as a result of this; is that correct?

Mr. NEAL. Yes, sir.

Mr. JOHNSON. Let me ask you this question: Prior to the Dateline NBC reports in May, did you or someone known to you or someone aided—whom you aided and encouraged provided the tip to NBC to investigate this matter?

Mr. NEAL. No, sir. NBC came to me about 6 months into an investigation I was doing and asked me if I would be interested in doing a side-by-side shoot.

Mr. JOHNSON. Do you know how their side-by-side shoot got started?

Mr. NEAL. No, sir.

Mr. JOHNSON. And you cooperated fully with them?

Mr. NEAL. Yes, sir.

Mr. JOHNSON. Let me ask you a question, Mr. Coyle. Have you ever worked as a paid consultant to NBC?

Mr. COYLE. No, sir. You asked me that question in January, and the answer was no then and it still is no.

Mr. JOHNSON. How about your firm? I asked you that also.

Mr. COYLE. I don't work for a firm. I work for a think tank, and no, they don't either.

Mr. JOHNSON. Let me ask you a question, Mr. Coyle.

In your opinion, were the tests that were conducted by NBC news in Germany a fair, objective, and comparable test with respect to evaluating the ballistic capability of body armor?

Mr. COYLE. Yes, sir. I believe that they were. They were limited, as has been explained during the day today. They didn't include high temperature, low temperature, but as far as that went, yes, I thought they were very fair.

Mr. JOHNSON. You reports say that you have got 30 years of test and test-related experiences related to test and test-related equipment; is that correct?

Mr. COYLE. Yes, sir.

Mr. JOHNSON. How much experience have you had in terms of observing body armor tests and evaluation of protocols and procedures on those tests?

Mr. COYLE. Not very much. When I was in the Pentagon from 1994 to 2001, body armor was not the issue that it is today.

Mr. JOHNSON. So you have answered my question.

So tell me on what basis can you determine that the tests conducted in Germany by NBC were fair and objective?

Mr. COYLE. The basis for saying that is that both sides, so to speak, the Interceptor and Dragon Skin were treated the same. The tests were done under the same conditions, the same ammunition for both, the same shot patent for both. Everything was done identically.

Mr. JOHNSON. Do you know if the vendor who provided the IBA system was a qualified source of a military body armor for both the outer technical vests and ESAPI plates?

Mr. COYLE. No, sir. I don't.

Mr. JOHNSON. Mr. Neal, did you personally observe the NBC news ballistic tests conducted in Germany?

Mr. NEAL. Yes, sir.

Mr. JOHNSON. How did the test conducted in Germany compare to the tests that you observed at the H.P. white test facility?

Mr. NEAL. As far as the ambient shoot that we did, it was primarily the same but the main difference is the NBC shoot they were aiming to put six rounds on target because they wanted to show the multiple repeat hit capability requirement that is brought up by NIJ. So that was one of the main things.

The first three shots that were fired were to the shop placement protocols as far as spacing and it was all shot to the ESABI specification issue that you asked.

Mr. JOHNSON. Did you have any input into the selection of that particular location or that particular entity to conduct the NBC tests?

Mr. NEAL. No, sir.

Mr. JOHNSON. Were you paid for any consultancy by NBC regarding the Dateline NBC expose?

Mr. NEAL. The only thing I was to do was to supply my Level IV Dragon Skin to have it shot against an ESAPI system.

Mr. JOHNSON. Has the Dragon Skin SOV–3000 vest been tested at NIJ Level IV threat level?

Mr. NEAL. No, sir. We are due to get tested. We are just waiting for the range to give us the appropriate time. There is a lot of other armor systems in front of us right now.

Mr. JOHNSON. Does that SOV–3000 vest size extra-large weigh, I think you said, 46.1 pounds you said?

Mr. NEAL. In the configuration that is shown here and as weighed it was 46.1 pounds. Again, that is more than we put in our full torso wrap. Our full torso wrap will end up weighing in an extra-large about 43.4 pounds, roughly.

Mr. JOHNSON. Is that pretty heavy for a serviceman or woman walking around or running around on patrol on duty in Iraq?

Mr. NEAL. Yeah, it would be, and again, that is one of the reasons why the Dragon Skin offers the capability being mission specific tailored as far as the amount of coverage. If you were to take same Interceptor Body Armor, the weights of all of the added plates come up with a square inch, if you will, aerial density and if you were to add that same amount of coverage in aerial density weights with the amounts of coverage that are in there, so too will the weights go up substantially.

But the way I look at it from designing and working the Dragon Skin body armor, is if an individual needs to add added protection to protect themselves from IEDs or projectiles, it is better to add flexible uninterrupted, no gap coverage than coverage which starts to further restrict your movement as with rigid plates and has gaps between all four plates.

The CHAIRMAN. I thank the gentleman from Georgia.

Dr. Gingrey from Georgia, please.

Dr. GINGREY. Mr. Chairman, thank you, and to the witnesses, I want to apologize that I have not been here for the entire hearing. I have missed a lot of the clumping, lumping, dumping and slumping that has gone on over the last hour and a half. I had to go to a very important press conference on medical liability tort reform.

But I do have a question, and I am glad I didn't miss my colleague from Georgia, Representative Johnson, who just asked you a question in regard to the company, Pinnacle Armor, in regard to all of the publicity, did it actually increase your sales, Mr. Neal, and I think you very emphatically said yes. It sounds like maybe this is the Stuart Downey Hilton as in Martha, Robert and Paris model of success. So it is kind of interesting.

I think the question that all of us probably are thinking, and I am going to ask you, what motive do you think the Army would

have in not doing a good test when lives are at stake? And I have had a young first lieutenant, president of the student body at my alma matter, Georgia Tech, 26 years old, and was transferred from the Demilitarized Zone (DMZ) in Korea to Iraq a couple of years ago, and leading his platoon the first week on the ground, he was shot and killed below his body armor below the level of protection. And, of course, we are constantly improving so that the femoral artery area, the groin area, as we refer to it medically, is protected.

So it just astounds me to hear you suggest, now you may say well, we didn't say that, but at least the suggestion that for some ulterior motive, God knows what, maybe you can explain, that our military would rig the system in favor of some favored vendor contractor when lives are at stake like First Lieutenant Tyler Brown, president of the student body at Georgia Tech several years ago who is buried at Arlington.

So just answer that question for me. Maybe you have already answered it. I don't know. I associate myself very much with the comments of my chairman, Mr. Skelton, and our ranking member, Mr. Hunter, and probably a lot of the others on both sides of the aisle.

But go ahead and explain that to us if you can. Why would they do that?

Mr. NEAL. You will have to ask the Army that. We have brought a system to them that provides several substantial advantages over the current system. You were just talking about the femoral artery area in the lower platform in the hip section.

We have been providing, since we started with the body armor program in tactical armor, a groin protector that not only does it not just hang below like the current system, it tucks up underneath so there is no gaps. It is actually wider, not as long, so it does actually cover the hip joint areas which are the direct paths for the femoral artery rather than something narrow.

So we provided—we provide something that is actually wider and takes into consideration the platform as it is called much more readily.

We provided higher up into the armor—up under the arm coverage. We have done that since the beginning. Instead of a front opening vest, once you load a bunch of gear down on it, now the vest has a hard time staying closed, we have always done side opening vests with overlapping coverage so when you make an adjustment, you still have——

Dr. GINGREY. Let me interrupt you, because I have limited time, and you are taking an opportunity to say how much better the body armor that you provided in regard to the femoral artery or the axillary area, but that wasn't my question. Please answer my question.

Why do you think that our Army would rig the system in regard to this when lives are at stake? What motive would they have?

Mr. NEAL. As I said earlier, sir, I don't know what motive they would have. You would have to ask them.

Dr. GINGREY. Go ahead.

Mr. COYLE. I have not said that the Army rigged the tests. I wasn't at the test they did a year ago. Haven't impugned the Army in any way. And I wouldn't. The U.S. Army is a noble institution, and I defend them regularly.

Dr. GINGREY. Thank you, Mr. Chairman. I see my time has expired.

The CHAIRMAN. Mr. Ross has a unanimous consent request at this moment.

Mr. ROSS. Thank you, Mr. Chairman, for recognizing me and for allowing me to participate in today's hearing on this important topic.

Let me say quickly this issue was brought to my attention by one of my constituents, Mr. John Grant, whose son serves in the Arkansas National Guard and has already been to Iraq once and is getting ready to go back again.

And the father's concern and my concern is simply making sure that the U.S. Army is providing these young men and women with the most technologically advanced body armor available. I don't care who makes it. I just want to make sure whatever is most advanced on the marketplace is being provided to our men and women in uniform as the Arkansas 39 prepares to go back to Iraq.

At this time, Mr. Chairman, I would ask that while Mr. Grant wasn't allowed to be on one of the panels today, I would ask that we make part of the permanent record of this hearing a copy of his written testimony that I can present to you, sir.

[The prepared statement of Mr. Grant can be found in the Appendix on page 92.]

The CHAIRMAN. Thank you. So ordered.

Mr. Turner, the gentleman from Ohio.

Mr. TURNER. I have a series of questions for Mr. Neal, but I have a question also of you, Mr. Chairman, if you would with the staff subsequent to this hearing, follow up with Mr. Neal on his issue of the actual numbers of the sales of this equipment. You began a series of questions that I think this committee could benefit from the information because just as we want to make certain that we have the best equipment, and everyone on this committee is absolutely committed to it.

We also want to make certain that our men and women and their families are not being taken advantage of, and I think there are a series of further questions that our staff would be best able to ask Mr. Neal that he could answer about the actual number of sales, who they are being sold to, how are they being marketed to our families.

If you would please ask the staff to do that, I would appreciate that.

Mr. Neal, I have got to tell you, I have been on this committee five years. Your presentation has to be one of the least professional I have ever seen in front of this committee. I came to the hearing expecting to hear detailed information on the success of your product. I think this is one of the greatest countries in the world for innovation, and I wanted to hear about innovation. I wanted to hear about a commitment to our men and women in uniform.

I am going to read to you and for the people who are listening, excerpts of your great testimony on your product.

"Some diehard military traditionalists, as one of your staff members has put out disinformation, it would seem that there is a specific convenience for convenience. Obviously being singly sighted. But to selectively choose, body armor system was ridiculed. The

Army disgustingly took great liberties in deliberately stating innuendo:

"The Army is going to slander me and derive our product."

And I want everybody to know this is your written testimony:

"it is a sad commentary that the Army's version of the truth doesn't always jive with the facts. General Brown conveniently failed to tell you. General Brown said he is always looking for better body armor, but I question if that is true. I am sure some of you are scratching your heads and asking yourself, why would the Army lie. General Brown's egregious assertions,"—I am going to take a pause at this point. Quite a Thesaurus that you had to turn to for negative comments to make about individuals that you are giving us information about.

"I am sorry they just don't understand it. They still have a ceramic plate mentality.

"So in addition to not giving you all of the data, he then tries to confuse you. We did not ask for this war. Did not seek it out and did nothing to trigger such an overreaction by the Army."

And then your press release today:

"During the hearing, Pinnacle Armor CEO Murray Neal will also respond to what he calls scurrilous lies made by top Army officials."

And then it includes the other information about what you say about other Army scandals.

Could you please tell me, Mr. Neal, who is Frank—I am going to mispronounce this, I am sure—who is Frank Jiminez?

Mr. NEAL. He is an individual that works with us on—because of this whole issue, works with us to filter the media information that comes in to us.

Mr. TURNER. He works for you?

Mr. NEAL. Yes, sir.

Mr. TURNER. This you provided to us for your testimony. In the back of it there is a piece of information that has been prepared by Frank for us. And it has—it has your logo, and it has Pat Tillman's photo. It has Jessica Lynch's photo, and it says this: "Today, sadly these words ring with the hollowness that should make the military hang its head in shame. From the same people who gave us the Pat Tillman debacle, the Jessica Lynch fabrication, the Trovi missile controversy, secret Pentagon death study and the Walter Reed scandal, we now present Dragon Skin, the latest victim of an Army campaign of misinformation and obfuscation."

This is prepared by your staff member on behalf of your company with your company's logo. And it is outrageous. And I am pretty certain, and please tell me if I am wrong, do you have the permission of the Tillman family or Jessica Lynch to place this in your corporate materials?

Mr. NEAL. You would have to ask——

Mr. TURNER. I would like you to find out for us because my guess is going to be no.

Now let us go to the next thing you say in here.

You say, "I am a straight shooter, and I am as forthright about that as I will be about every single thing I will tell you today."

Great. You have got—Mr. Chairman, I have got one quick item.

You say in here that there was a fire at the—your line—you say I don't want to believe that but H.P. white labs in Maryland had an explosion and fire shortly after NBC sought to get some Army test data. I do find that interesting."

In your straight shooting way, what does that mean?

Mr. NEAL. I was told about the fire and the information that was given to me, and like I said, I don't want to believe that. It just seems somewhat coincidental. That is exactly what I meant by that.

Mr. TURNER. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you very much.

Mr. Courtney. Mr. Klein. Mr. Radanovich, in that order, five minutes each. We will not take a recess. We will go immediately to the next panel.

Mr. Courtney.

Mr. COURTNEY. Thank you, Mr. Chairman.

In the NBC story, there was a definite point made that other government agencies besides the Army and the Marines have U.S. employees that are using Dragon Skin. Congressman Wilson and I were over in Afghanistan last week, had escorts of State Department personnel as well as some of the civilian security guards that were with us, and it was pointed out to me that a number of them were actually wearing Dragon Skin,

And again, you have started a few times during today's testimony to talk about your sales to government agencies of Level IV Dragon Skin. I guess—I think it would be very helpful because having seen it in Afghanistan, I mean, obviously there are people out there that are in this theater who are voting with their feet. They are buying your product and they work for the U.S. Government, and that certainly, at best, or at worst, sends a mixed message to our troops who may be wondering about whether or not they are, in fact, getting the best body armor.

So, again, the NBC story indicated that the Central Intelligence Agency uses Dragon Skin; is that true?

Mr. NEAL. Yes, sir.

Mr. COURTNEY. And again, having seen the State Department employee in Afghanistan wearing Dragon Skin, is that another agency where employees buy Dragon Skin?

Mr. NEAL. Yes, sir, or the State Department has purchased them themselves as well.

Mr. COURTNEY. So the State itself, in some instances, has purchased your products?

Mr. NEAL. Yes, sir.

Mr. COURTNEY. And the Department of Defense clump that you referred to earlier, again, those are individual purchases by soldiers or their families; is that happening?

Mr. NEAL. Individual soldiers, and we have sold to various branches earlier on. The clump was like for use in the military operations overseas.

Mr. COURTNEY. It sounded like there were high ranking officers whose own bodyguards were also using Dragon Skin in the story that NBC presented.

Mr. NEAL. Yes, sir. And, in fact, in the packet, there is the data that show—it has got the contract for both of those times where

the commanding general, his personal security detail, had procured the Dragon Skin in a concealed variant. The Dragon Skin is the only body armor that you can get rifle coverage in a concealed vest.

Mr. COURTNEY. Are there any other branches, Navy or Air Force, that use Dragon Skin?

Mr. NEAL. They have bought and so have individual airmen and sailors from the various branches.

Mr. COURTNEY. Mr. Chairman, obviously emotions are running pretty high in this hearing today and there are certainly issues about the testimony, which I agree with the prior member could have been presented better, frankly. But to me, again, the bottom line, it is not about you or us or the services. It is about what the confidence level is of our troops. And the fact that, again, the American government is, on the one hand, setting up a ban and yet other agencies are purchasing it and other individuals are feeling the need to purchase it suggests to me that at best or at the minimum, we ought to be getting to the bottom of this with a totally purely independent test so that people will have their questions answered.

Like Congressman Ross, I have a constituent in my district, ex-Marine, whose son is about to go off on his second deployment, a Marine who has been in constant contact with my office since the day I got elected last November, demanding help so that his son can get Dragon Skin protection. And again, it is hard, I believe, for us as Members of Congress or government officials, to say that he can't have what other people who work for our government feel they need and are able to have.

And that is—to me it is an untenable situation that we have got to resolve in a fair and open and transparent process and hopefully without some of the over the top finger pointing, which, again, I think legitimately has been criticized today. So with that, I yield back the balance of my time, Mr. Chairman.

The CHAIRMAN. I thank the gentleman.

The gentleman from Minnesota, Mr. Kline.

Mr. KLINE. Thank you. I am anxious to get to the second panel and hear from the Army and Marines. I don't have any questions for these witnesses. I yield back.

The CHAIRMAN. Let me ask this before I go to Mr. Radanovich.

Are there any present contracts for Dragon Skin ongoing between your company and the Department of Defense?

Mr. NEAL. No, sir.

The CHAIRMAN. When was the last time that there was any such contract with the Department of Defense or a subsidiary thereof?

Mr. NEAL. The last time—I don't have that data here to tell you when the last contract——

The CHAIRMAN. Your best recollection.

Mr. NEAL. It would have been last year.

The CHAIRMAN. With whom was that?

Mr. NEAL. We had one—just bear with me one second.

The CHAIRMAN. Can you find the answer, Mr. Neal?

Mr. NEAL. I believe it was with the Army, but I have to find it to give you exactly which one it was.

The CHAIRMAN. All right.

Did you certify as to the level of protection that your vest gives to the National Institute of Justice at any time? Any member of the Armed Forces or subsidiary thereof?

Mr. NEAL. I am sorry. I don't understand the question.

The CHAIRMAN. Isn't there a Level III protection?

Mr. NEAL. Yes, sir. There is.

The CHAIRMAN. Did you ever state that your vest rises to the level of Level III based upon the National Institution of Justice test?

Mr. NEAL. Once we received the certification yes, we have. Prior to that we tested—we test to the same threat level and have it tested at an independent laboratory, but we weren't seeking the certification because NIJ had to adopt a new protocol and procedure for flexible armor.

The CHAIRMAN. Thank you.

Mr. Radanovich, please.

Mr. RADANOVICH. Thank you for inviting me to the committee. It is an honor to be part of this hearing today.

I want to say, Pinnacle Armor is manufactured in my district in California. Back in 2005, myself and some of my colleagues had requested that the Army do tests on the vests, and I am pleased to know that the Army has.

I think the idea of the test was to make real clear which was the better test, and unfortunately I think that still to me remains uncertain.

But I did, Mr. Coyle, have a couple of questions for you.

And one is, as I understand these testing standards by the FBI, the CIA, the U.S. Marshall and other agencies are mentioned in your testimony, that they currently use or purchased Dragon Skin, are they more strenuous than the Army standards and if so, why, in your opinion, has Dragon Skin passed the test of the test of the FBI, CIA and U.S. Marshall but not the Army's test?

Mr. COYLE. Well, in some cases, the National Institute of Justice does have higher standards, more difficult standards than the Army does. For example, requiring six shots instead of three in one case, or just one shot in another case.

So there are differences. But I wasn't trying to make a special point about that.

Mr. RADANOVICH. If the U.S. Army test evaluation and command conducted a comparable side-by-side test of both the Interceptor and the Dragon Skin body armor, which, in your expert opinion, do you believe would prove to be the superior piece of equipment?

Mr. COYLE. It would be hard to say because I haven't seen the high temperature tests yet, I haven't seen the low temperature tests, haven't seen the motor oil and all of those. So until you have seen a full suite of tests, which NBC did not do, and I dare say you would have a hard time doing in the basement of this building, it would be hard to say.

Mr. RADANOVICH. While I feel that Pinnacle Armor, and Mr. Neal might be advised to get a public relations expert on the material that they do pass out, that might be advice well taken, I still think the bottom line of the test is to, and ought to be of everybody here today, which piece of armor is the best to protect the lives of men and women who are on the ground in the battlefield. And I don't

think that the tests that have been conducted has really proven that, and that is why I support an independent study going out so we can answer that question.

I don't fault the military, and I don't think this ought to be any insult toward the military. I think what is lacking is an apples-to-apples comparison which may be difficult to do by the nature of the vests and the plates versus the scales and getting something that is an equal comparison. I don't think I have seen, by what has been presented today, that there is that comparison made.

And I really think that we owe it to our troops and the men and women on the ground to go back and make sure that we know that these are—that there is an apples-to-apples comparison test here that does prove which is the better vest, because our troops on the ground ought to be wearing that better vest.

Again, I make no slight toward the military. I think some of the material that Pinnacle has submitted is inappropriate. But you know, this isn't a debate about whether, you know, they are insulting the military. This is a debate on which is the best vest to protect the troops on the ground. And I think we need to make the extra effort to guarantee that.

And with that, again, I thank the chairman for allowing me to be a part of this committee and yield back the balance of my time.

The CHAIRMAN. Mr. Hunter.

Mr. HUNTER. Thank you, Mr. Chairman, and pardon me for stepping out for a minute and we are all Jacks of many trades; we have got other stuff we have got to do, and I think this has been a very good hearing.

Let me follow on with my friend with this statement.

Mr. Neal, when we walked through this thing, you did say that the first penetration that was made you didn't—you didn't see—you were standing there, you don't think that was done unfairly or at a bad angle or was somehow a trick, but that that appeared, in fact, to be a penetration, and you sometimes have those, and you have to keep testing, and that may be just a defective one-in-a-million piece of equipment you have.

Is that fairly accurate?

Mr. NEAL. Yes, sir.

Mr. HUNTER. Okay. Having said that, Mr. Coyle, you have a long reputation of very fastidious testing where you would come to this committee after something had been shot 15, 20, 30, 40, 50 times and you would say no, it is not ready for prime time. We had a failure.

Now here is what we had. Mr. Neal had a test with the U.S. Army for practical purposes in a lab with integrity, a recognized certified, et cetera, laboratory. They had a test with him standing there and did a penetration. They then went to you and NBC and you guys did a separate test.

Did he tell you about the first test where they had the penetration?

Mr. COYLE. I saw from, as I say, materials that I saw in the press and other places, I saw that that had happened. So I knew that the history from the tests a year ago was different. I didn't know what to expect——

The CHAIRMAN. Let me interrupt. Answer the question. Did he tell you?

Mr. COYLE. He didn't, but he didn't need to because I already knew it.

Mr. HUNTER. You knew there had been a total frontal penetration in this.

Mr. COYLE. I knew that before the tests in Germany began.

Mr. HUNTER. I thought you told me earlier on in this testimony, I asked you after you had done the 12 shots or the 18 shots that were done in Germany, if you knew about the shot that went all the way through that was done in the Army lab, would you have then said that this was superior to the Army product and you said no. At least, that is what I got back about half an hour ago.

Mr. COYLE. If the results in Germany had been like the results that are——

Mr. HUNTER. That wasn't my question. My question was if you had known about those results at a government lab like the ones you relied on for years when you take data from one of those government labs and say, Armed Services Committee, this is what we just got. The missile failed. I would not recommend going ahead. You did not say I think that this is duplicitous or we should do another test with a non-governmental lab. You said they failed. Don't go ahead.

Now you had a shoot there that would have been fatal to a soldier wearing that vest, right?

Mr. COYLE. Yes, sir.

Mr. HUNTER. Okay. Now if you had known that and you presumed that it was done under good conditions, and in this case they are unique conditions because your client or clients or the gentleman who owns the company was allowed by the Army was allowed to stand there and watch the shot and boom, the shot went through, would you have then said without further testing that this appeared to be a superior product to the Army product?

Mr. NEAL. If I hadn't seen the results from the tests in Germany, no, sir. The Army has, I think, a very important position here. The Army says that one penetration is too many. And I agree with that. I think they are just right when they emphasize that point of view.

Mr. HUNTER. So here is my question. You took how many shots in Germany?

Mr. COYLE. All in all, of all of the different types, 31.

Mr. HUNTER. But the ones that you had, your primary ones you talked to us about, that was 18: Three sets of 6; is that right?

Mr. COYLE. Yes.

Mr. HUNTER. So you took three sets of six and you had no penetrations, right?

Mr. COYLE. Yes, sir.

Mr. HUNTER. Mr. Neal, before that, had his product which he selected, took down to the Army lab and they shot it and no complaints from Mr. Neal and boom, it went through with a killing shot, right?

Mr. COYLE. Yes, sir.

Mr. HUNTER. So for practical purposes there you have at least one killing shot, and then you did 18 that were defeated.

Now I have known you for a long time testifying before this committee. Would you think that you could make that conclusive statement that it was superior to the Army product without shooting it a lot more times? This is the operational and test guy who tells us that thoroughness is so important?

Mr. COYLE. All I said was based on the test that I saw in Germany, Pinnacle performed better.

Mr. HUNTER. We are getting to my point, and Mr. Chairman, I hope you would suffer me here because this is an important point.

Based on your statement, because you have a—you have an outstanding reputation. You are charged not only with the tests that you stood and watched, you are also charged with the information that comes from an officially certified military lab, like the ones you relied on for 20 years in your profession.

Now having known that fact, and Mr. Neal does not dispute it, that was a killing shot through that vest, would you then say that this lab—that this vest was ready for prime time?

Mr. COYLE. No, sir, and I do not say that today. What I say is the tests in Germany, which were limited, and which I say in my testimony were limited, based on those, as far as they went, which wasn't far enough, the Dragon Skin did better.

Mr. HUNTER. So you are saying today, and I hope somebody from NBC is in the audience, you are saying today that based on those 18 shots and the shot that you now know about that was a killing shot, you can't say it is ready for prime time; is that your testimony?

Mr. COYLE. Yes, sir.

Mr. HUNTER. Okay. Now having said that, Mr. Neal, you have thousands of parents reading articles who are going to go out now and pay five grand a piece for this thing, don't you think it is important for them to know not only about the successful test that NBC did, but the killing shot that was made, the unsuccessful defending of that vest which you would call a defeat of the vest rather than a defeat of the bullet, that that killing shot was made in a test that you personally watched.

I mean, if you are going to look a parent in the eye, you talk about looking parents in the eye, I have got a kid in theater who has done three tours. He reads the same newspaper articles that say this appears to be better than anything else. Don't you think you have an obligation to tell those parents, you know, I have watched one shot that went right through the heart, and I have got to tell you that to be honest.

Don't you think you have that obligation?

Mr. NEAL. Yes, sir. I do. But——

Mr. HUNTER. Have you ever made it available in any of your literature?

Mr. NEAL. May I finish the rest of my thought here, please?

Having said that, the test protocol and procedures has requirements in it and a lot of people know, as well as I do, that there have been a lot of people killed from one shots through the SAPI plates. The Dragon Skin Interceptor—sorry about that—the Dragon Skin body armor system does far superior in performance on a regular basis. It is far more superior against fragmentation than anything out there. But this is a science that is not 100 percent.

And nobody, I don't know the Army or anyone else, that will state that body armor can 100 percent of the time defeat a round.

Mr. HUNTER. Okay. Mr. Neal, having said that then, don't you think it is your obligation to tell the mothers and dads of this country when they read these articles that imply that Dragon Skin is a supreme type of a protection system, that you, in fact, did the test, the test that you did, that you don't disagree with, when you were standing there you were personally there, a killing shot went through that. Don't you think they need to know that as a caveat before they go down and spend their $5,000? And Mr. Coyle, your tester, now says it is not ready for prime time.

Now don't you think that you at least owe that—if you are going to have these statements circulating in the press that are going to upset parents and make them think that there is a super system out there, and it may overall, in fact, I think some of the aspects of this system, the flexibility of the system, the possibility being able to use this where you can put more weight on it where you are using armored vehicles, et cetera, where you are not having to carry stuff in a squad formation, I think there is a lot of possibilities here.

But I think the idea that you circulate this implication without telling them that you stood there and watched a killing shot go through this, I think that is not full disclosure. I think you owed full disclosure to Mr. Coyle, and I hope Mr. Coyle says it is not ready for prime time. That is not the headline that goes out over Dragon Skin. The headline that goes out over Dragon Skin is that it is fantastic.

One last point here that I think needs to be made is this:

I saw this thing, and I told my guys to have you come in, or whoever your team is and show us because I wanted to get good stuff out to the field. About a year before NBC showed it.

Your guys came in, they briefed up our team. We called the Army, told them to test it. They said we are testing it, and they subsequently tested it, and those are the results that we have been discussing in that handout. That they did test it. And it may be better than they have advertised. It may be worse than they have advertised, and I want to see a test. In fact, I am ready to go down with an M–14 and some 7.62 stuff to the Marine Corps lab and try to get some shots off in the next week or so.

But everywhere you go, you leave the implication that everybody is a devil. I have got great professional staff members who called your guys in at my request, not NBC's, long before they discovered this because we heard about it. A few days later, their names pop up on Web sites saying that staff members of the Armed Services Committee are the devil, that somehow they are in a conspiracy to thwart you from trying to get good stuff to the troops.

Every place you go you get these apocalyptic letters describing anybody who has questions about this as a devil and when you are asked about this about these letters in the hearing, you say you know, I was just passing along the concerns of the families.

I think it might be interesting for the families to know, in fact I would like to hear from them, how many got the information from you when you stood there and had your test, your vest shot, and the bullet went all the way through it, and you didn't report that

to anybody. You didn't think those families needed to be burdened with that knowledge, did you?

Mr. NEAL. I didn't say that, sir. And as far as the comment to what goes on on the Web sites, I don't have any control——

Mr. HUNTER. Wait one second. Your team came in and—the Armed Services guys said hey, we want to see this and test it. Within days, comments about them that weren't very laudatory appeared on Web sites. Now the only people in here talking with them were your representatives.

And so I think—I think you need to acknowledge to this committee do you think any of the Armed Services staff members have tried to thwart you or have a conspiracy against you any way? I think you need to acknowledge that for the cameras so if there is a problem, we know about that.

Mr. NEAL. I didn't say that, and I am not here to insinuate that.

What I want to tell you is a, whatever goes out over the Web site and the blogs, I have no control over. I will respectively make a statement to the chairman and the honorable members here that this is my first time here, and I might not be one that articulates very well some of the information that goes out. And for that, you know, I will apologize to you, and I will apologize to the American public. I am not a great writer. But when I am quoting and providing information that has been given to me, I have no control over that.

Mr. HUNTER. Let me ask you to do one thing.

You have got these Web sites out there that obviously follow every statement that you make. And in some cases, you are saying they expand them or they turn them in some way that is far beyond what you have said.

I think you have an obligation to go to them after this hearing and tell them if there hasn't been a conspiracy on the part of the members of our staff to somehow thwart you or have some kind of a campaign to keep your product from being seen or tested or heard, I think you need to make that statement to them so that that—so that that matter is cleared up because obviously an impression has been given by these things that go out on the Internet. And if you are saying you have nothing to do with that and you have no information that would back that up, I think it is important to clear that up.

Do you think that is a fair thing?

Mr. NEAL. I can do that if I knew which Web sites.

Mr. HUNTER. I think one that immediately reported after your trip down here that said that you had been conspired against was, I think the Web site called Soldiers For the Truth. Now somebody from your team obviously talked to them and even while they were criticizing the staff members, the staff members were calling the Army saying let us do this test.

Mr. NEAL. I don't know, sir. I don't write for Soldiers For the Truth.

Mr. HUNTER. Your people obviously talked to them because your folks were the only guys here in the meeting.

Mr. NEAL. We get called by a lot of people all the time about stuff and asking questions.

Mr. HUNTER. In that case, why don't you make it clear that the staff members treated you in a professional way and that you did get a test from the Army following or subsequent to the meeting that your folks had here even if you don't agree with the tests.

Mr. NEAL. And I never said that we didn't. No, sir. I didn't.

Mr. HUNTER. If you would make that affirmatively clear, I think that is important to us.

Having said that, I think we need a test. So I think we have got all of the information that we need to put this stuff side by side, get those M–14s ready to go and if we can get better equipment to the troops, let us do it.

The CHAIRMAN. I thank the gentleman from California.

I am troubled, Mr. Neal. In front of me is a photograph of an apparent attachment to the body armor itself. At the top it says Pinnacle Armor and your address, the Web site number, personal body armor. It has the size and the model and the serial number. Then it says this: The manufacturer certifies that this model of armor has been tested through NLECTC and has been found to comply with Type 3, performance in accordance with NIJ standard 0101.04.

Warning: This garment is rated only for the ballistic threat level stated above where the plates or composite disks are in place. Areas outside the zone are designed for Level IIIA ballistic protection only.

This is dated April 14, 2006.

I have in front of me a letter from the Department of Justice dated December 20, 2006, a letter to you. Dear, Mr. Neal, it is notice of compliance with NIJ 2005 interim requirements body armor model Level III.

And what I found to be interesting is that this attachment to the body armor is dated April 14th, 2006 and the actual certification is December 20, 2006.

I will not ask you to explain that. But I merely point this out that this is a serious discrepancy of making an ascertain months before it actually came to pass.

We will now go to our second panel.

[Recess.]

Dr. SNYDER [presiding]. I am going to go ahead and introduce you here.

We will now move to the second panel. With us today are representatives of each of the military services, the Government Accountability Office, the National Institute of Justice, H.P. White Laboratory. We really appreciate you being here and we appreciate the fact that you have stuck with us this long, and he heading into this afternoon.

Representing the Army is Lieutenant General Ross Thompson, III, Military Deputy/Director of the Army Acquisition Corps, Office of the Assistant Secretary of the Army.

Representing the Department of the Navy Mr. Roger Smith, the Deputy Assistant, Secretary of the Navy, Littoral and Mine Warfare.

Representing the Marine Corps, Colonel Ed Smith, Product Group Director, Combat Equipment and Support Systems.

Representing the Air Force, Mr. Douglas Thomas, Executive Director for the Air Force Office of Special Investigations.

Representing the Special Operation Forces Command Colonel Kevin Noonan, Program of Executive Office, Special Operations Forces.

Representing the Government Accountability Office is Mr. Bill Solis, Director of Defense Capabilities and Management Team.

Representing the National Institute of Justice is Dr. John Morgan, assistant director.

The CHAIRMAN. General Thompson, it is my understanding that you will be the lead witness and the other services may join in as you all deem fit, and if you want us to wait, you begin wherever you want to wait. You may know that the noise level is going to continue here so you fire away whenever you are ready.

STATEMENT OF LT. GEN. N. ROSS THOMPSON, III, MILITARY DEPUTY TO THE ASSISTANT SECRETARY OF THE ARMY FOR ACQUISITION, LOGISTICS AND TECHNOLOGY

General THOMPSON. Thank you. I think I will go ahead and start. I am prone to be heard——

Good afternoon. Chairman Skelton, Congressman Hunter and distinguished committee members, we thank you for this opportunity to discuss the Interceptor Body Armor system.

With me today is Brigadier General Mark Brown, who is our program executive officer soldier and members of his organization, and you have already introduced the other panel members.

We have a joint written statement that I respectfully request be made part of the record for today's hearing, but let me say at the outset that it is a distinct honor to appear before you and to have this opportunity on behalf the Army's senior leadership to assure you and your fellow Members of Congress, the American people, our service members, and the loved ones of our brave men and women in uniform, that we in the Department of Defense have no higher priority than force protection.

Cost and affordability are not the deciding issues. The pertinent issues for us are whether lives will be saved, the lives of our service members and those who lead them.

Interceptor Body Armor saves lives. It is the most effective body armor available anywhere on earth. And that is why our men and women in uniform wear it and have confidence in it. It is passed rigorous live fire and environmental testing, and most importantly, has been proven in combat time and again.

Although no body armor will be fielded to our troops until it has passed rigorous testing, there is another key factor when determining a system's operational suitability and that is the weight of the system.

The Army continues to look at ways to reduce the weight of body armor and all other soldier equipment and to better distribute that weight. In this case, there have been eight improvements to the Interceptor Body Armor system, including four vest weight reductions, enhancements to the ballistic plates, the introduction of supplemental protection for the sides, arms, neck, and groin areas, and improvements to the overall design of the outer vest.

Our men and women in uniform wear body armor that offers the best protection available.

To demonstrate its life saving capabilities, we have today Specialist Gregory Miller. He is originally from Peoria, Illinois. On December 18, 2006, he and his fellow soldiers in C Company, Second Battalion 327th Infantry 101st Airborne Division were in Kirkut, Iraq. Specialist Miller was dismounted pulling security at a busy intersection while his unit conducted weapons inventories at a political party headquarters. Suddenly and without warning, he was hit by a sniper with a 7.62 mm round. Fortunately he was wearing Interceptor Body Armor, and he sustained the hit in the back plate top right corner. Specialist Miller was able to continue his mission because of the protection he received, and I will note, and he can discuss this later, that he put this body armor on one hour before he was hit with the 7.62 mm round.

He will stay after the hearing to demonstrate and discuss the Interceptor Body Armor he is wearing.

He is one of America's finest, and I would like him to stand up and, and I would like to thank him publicly for his outstanding service to our nation.

[Applause.]

Every soldier has at least one set of body armor, and when improvements are made, we quickly field the new equipment with priority to those in combat or those deploying to combat. We continually seek improvements to our body armor, and when we are presented with the potential improvement, we test it to the highest standards, and when and only when those standards are met, production in fielding begin.

The safety of our soldiers is paramount. In March of 2006, the Army issued a Safety of Use Message prohibiting the use of any commercially available body armor products to include Dragon Skin that are not Army approved and issued.

This Safety of Use Message was issued as a result of several previous tests that took place from May 2004 to February of 2006 on Dragon Skin. These tests indicated that Dragon Skin did not meet the Army requirements. So we are talking about five previous tests, not just the test in May of 2006 that was referred to in the panel one testimony today.

As a result of the Safety of Use Message Pinnacle Dragon Skin 2000 Body Armor purchased by an Army unit was turned into the PEO and as indicated during the previous panel's testimony, it contained a fraudulent National Institute of Justice certification statement that was fully 8 months before the National Institute of Justice certified that version of the body armor.

Each vest contained the Pinnacle Armor's manufacture label with the compliance statement that was read by Chairman Skelton.

Army coordination with the National Institute of Justice revealed that this statement was not true. As of April 2006, the 2000 Dragon Skin armor had not been tested by NIJ and was not certified to defeat the Level III threat.

In my opinion, this is a serious fraudulent claim, and it is my hope that the investigative process results in the appropriate consequences.

In the interest of fairness and because of intense media interest in Dragon Skin, the Army chose to run a full test of Dragon Skin last spring. In May 2006, H.P. White Laboratory, an independent test facility, certified by the National Institute of Justice for ballistic testing, tested Pinnacle's 3000 Level IV Dragon Skin vest using the same test protocols that we use with the Interceptor Body Armor. Before the testing was halted, the Dragon Skin vest suffered 13 of 48 first- or second-round shot complete penetrations failing four of eight initial subtests.

The bottom line is that the Dragon Skin vest did not stop the bullets.

And we can get into this in the questions and answers later, but Congressman Snyder and others asked a key question on who provided that body armor for the test that was conducted by NBC in Germany, and we have indicated from talking to NBC that PPI provided that body armor but that body armor that was provided for the NBC test was not from one of the six certified and tested producers of the body armor that is used by the military.

Before I conclude my remarks, I would like to highlight an issue of grave concern to me and that is the role of a responsible press, and in that term, I include the print media and the broadcasting industry. The press is an important guarantor of our freedom, and with that right, comes the responsibility to get the facts right and the stories straight.

The Army did not go public with our test results from last year because we are dealing with the very media-savvy enemy. The airing of the NBC news story prompted the Army to release information to assure service members and their families that the Army is providing the best body armor available. In this case, credible and factual evidence provided by the Army was cast aside for a sensational story that just was not true. It created needless worry among our men and women in uniform and their families and provided an adaptable enemy with additional information about how we equip our solders for the important missions they perform. It is a most unfortunate situation, and in my view, brings NBC's credibility into serious question.

This concludes my opening marks. I want to thank you, the members of the committee, for this opportunity to assure the families of our courageous men and women in uniform that they receive the best equipment including the finest body armor in the world so they can accomplish their mission successfully and return home safely, and we look forward to your questions.

[The joint prepared statement of General Thompson and General Brown can be found in the Appendix on page 134.]

Dr. SNYDER [presiding]. Who else has an oral statement they want to make.

Mr. Smith.

STATEMENT OF ROGER M. SMITH, DEPUTY ASSISTANT SECRETARY OF THE NAVY, (EXPEDITIONARY WARFARE)

Mr. ROGER SMITH. Yes, sir. Mr. Snyder, other distinguished members of the committee. Thank you for the opportunity to be back here today and appear to discuss the Navy's body armor pro-

grams. I would like to ask that my statement be submitted for the record.

The Navy procures and fields various body armor configurations based upon our ashore and maritime mission requirements as defined by the combat commanders. These systems all provide a minimum of defense level IIIa ballistic protection, while enhanced systems that are scalable provide level IV protection to meet the most stressing mission requirements.

Today, we have 13,000 Navy personnel deployed on the ground in the Central Command (CENTCOM) area of responsibility. About 90 percent of those personnel are deployed in support of ground forces in their traditional military roles or core competencies ashore, such as base and port operations, medical services, explosive ordnance disposal, construction and engineer battalions, or the Seabees, detainee operations, and traditional joint intelligence and staff support roles. Navy personnel are equipped with the appropriate body armor required for the mission that the individual or the unit they are assigned to will perform.

We acquire body armor for three main mission requirements: Navy Expeditionary Forces, like I had mentioned earlier, explosive ordnance disposal teams, Seabees, mobile security forces; individual augmentees assigned to joint forces; and shipboard antiterrorism roles.

We leverage the Army and Marine Corps research and development of individual ballistic protection material and equipment programs, both of which are extensive efforts to maintain a high level of ballistic protection. We capitalize on these investments by using the most recent approved specifications and test procedures from the Army's Natick Soldier RDT&E Center and procure body armor that meets these requirements, while incorporating features dictated by our operating requirements.

The Navy also adopts Marine Corps body armor solutions when they support the mission needs and the fielding goals. In the interest of time, and I will conclude my remarks by saying the Navy procures and equips its forces with the best available body armor tailored to our maritime and joint mission requirements, and continues to seek improvements in equipment, while leveraging Army and Marine Corps research and development initiatives.

Thank you, and I look forward to any questions you may have.

[The prepared statement of Mr. Smith can be found in the Appendix on page 129.]

Dr. SNYDER. Colonel Smith.

STATEMENT OF COL. EDWARD J. SMITH, PRODUCT GROUP DIRECTOR, COMBAT EQUIPMENT AND SUPPORT SYSTEMS, U.S. MARINE CORPS

Colonel SMITH. Dr. Snyder, Congressman Hunter, and distinguished members of the committee, I am honored to appear before you today and this opportunity to discuss Marine Corps body armor. But first, on behalf of all marines and their families, I want to thank you for your continued support to meet the needs of our marines as they continue to fight the war on terror.

Force protection is a top priority for the Marine Corps. We are committed to providing body armor and other personal protection

equipment to save marines' lives, reduce casualties, and limit the severity of those casualties. Our warfighters have the best body armor available. According to the Armed Forces Institute of Pathology, there have been no deaths attributed to the penetration of an Enhanced Small Arms Protective Insert, or ESAPI, by a threat round that it is designed to defeat. Our body armor works.

All of our protection equipment is certified through rigorous ballistic testing that must withstand fluctuating temperatures and extreme environmental conditions. The Army and the Marine Corps use the same test protocols. In addition to testing by the government, testing is also conducted at an independent ballistic laboratory. I am confident in the unbiased results.

In addition, after a system is fielded, we continue to look for ways to further improve those systems. We collaborate with industry, our sister services, Office of Naval Research, and the joint science and technology community on future technologies. We also turn to our medical community for their expertise to evaluate and make our systems the safest they can be for our warfighters. The wartime environment constantly changes, and no one is better suited to determine what would be most effective in any given situation than the warfighter.

With our modular ballistic body armoring system, we provide body armor solutions that can be configured to meet varying threat levels and mission requirements. Working with the Army, the technology base and industry, we are doing everything we can to ensure the safety of our marines by providing them with the best and most effective force protection equipment at the lowest possible weight. The lives of our marines and sailors are precious.

In conclusion, on behalf of your marines, I extend great appreciation for your support today, and thank you in advance for your ongoing efforts to support our brave servicemen and women in harm's way. I would be happy to answer any questions you may have. Thank you.

Mr. SNYDER. Thank you, Colonel.

[The prepared statement of Colonel Smith can be found in the Appendix on page 122.]

Dr. SNYDER. Mr. Thomas.

STATEMENT OF DOUGLAS D. THOMAS, EXECUTIVE DIRECTOR FOR THE AIR FORCE OFFICE OF SPECIAL INVESTIGATIONS, U.S. AIR FORCE

Mr. THOMAS. Good afternoon, Dr. Snyder, Ranking Member Hunter, distinguished members of this committee. On behalf of General Simmons, who is the commander of Air Force Office of Special Investigations, and the men and women of OSI, and the entire Air Force, I want to thank you for your support in war against terrorism.

Briefly, I would like to talk about our timeline with our association—short association with Pinnacle Armor. On 31 August 2005, based on Pinnacle literature and Pinnacle claims, OSI contracted to purchase 590 vests from Pinnacle Armor. Between October 2005 and 1 January 2006, Dragon Skin vests were delivered to OSI and fielded for our deployed agents and our deploying agents. On 26

January 2006, the United States Air Force Battle Lab notified us that the vests failed.

On 16 February 2006, OSI, working with Aberdeen Test Center, tested vests, and they failed. On 11 May 2006, we received verification from the National Law Enforcement and Corrections Technology Center that the SOV 2000 Dragon Skin, which is what we purchased, had not been tested or certified to NIJ standards. That is what Chairman Skelton read earlier. That was a big surprise to us, because that is one of the reasons we purchased the vests.

In May, 2006, OSI opened a joint criminal investigation with DCIS against Pinnacle Armor for false NIJ certification on the vests and false representation of its capabilities. In June, 2006, we tested the vests again with H.P. White, and failed.

In closing, sirs, ma'am, I can assure this distinguished committee we are committed to providing our men and women the best protective gear and equipment. Safety is our number one concern for our deploying agents. Yesterday morning we lost two more OSI agents. We do not take safety and security and force protection lightly.

Again, please accept my sincerest gratitude for your continued support and efforts. Thank you.

[The prepared statement of Mr. Thomas can be found in the Appendix on page 116.]

The CHAIRMAN. Colonel Noonan.

STATEMENT OF COL. KEVIN S. NOONAN, PROGRAM EXECUTIVE OFFICER, SPECIAL OPERATIONS FORCES WARRIOR PROGRAMS, UNITED STATES SPECIAL OPERATIONS COMMAND, U.S. ARMY

Colonel NOONAN. Mr. Chairman, Mr. Hunter, and distinguished members of the committee, it is an honor to appear here before this committee today to report on the United States Special Operations Command body armor requirement and material solution.

I am Colonel Kevin Noonan, the USSOCOM Program Executive Officer for Special Operations Forces Warrior Programs within the Command's Acquisitions and Logistics Center. I am in charge of acquiring SOF-peculiar solutions for a variety of items, including weapons, ammunition, ground mobility, visual augmentation systems, and personal survivability equipment that are not provided by service-common solutions.

To achieve this, we use utilize a process that directly teams with our component users from the Army, Navy, Air Force, and Marine Corps Special Operations Commands. Our goal is to maximize the use of service-common solutions, and we are actively engaged with service program offices to test the equipment that can meet SOF requirements.

The USSOCOM ballistic protection solution is known as the SOF Personnel Equipment Advance Requirement, or SPEAR, body armor system. The USSOCOM requirement is one to provide a level of protection to defeat two-strike armor-piercing munitions. We do this by rapidly fielding successive lightweight and advanced SOF-unique components of clothing and individual equipment while integrating them into a tailorable system.

This tailorable system is called the SPEAR Body Armor Load Carriage System, or BALCS. It is a family of integrated armor and

load carriage systems which provides SOF operators with the modularity required to meet the various mission profiles and environment extremes. Specifically, USSOCOM requires the ability for individual operators to tailor his protection and load to meet various mission profiles while maintaining the necessary agility, mobility, and range of motion required to meet SOF mission standards.

In accordance with USSOCOM requirement for modularity and tailorability, the SPEAR body armor system employs a variety of pockets, pouches, harnesses, and an additional plate carrier to meet various SOF mission scenarios.

USSOCOM uses the SPEAR body armor system because it has been successfully tested and has been proven in combat to meet the two-strike armor-piercing munitions. The SPEAR body armor system has proven an effective ballistic system in SOF combat operations throughout the world since 2002. There are many documented cases in which the SPEAR body armor system has saved the lives of SOF operators in combat. These results have produced an enormous confidence in SOF operators with regard to their ballistic protection.

USSOCOM continually researches—correction, searches—for new technology and support for its SOF missions. We test our SPEAR armor system against current, emerging, and future battlefield threats.

We recognize that in order to meet the need of our SOF Warrior, we must constantly strive to reduce the weight of our body armor, while increasing the ballistic protection. We have challenged industry to meet this requirement in our current solicitation for the SPEAR family of ballistic plates, which was released this month. Responses to this solicitation are due August 7th, and we expect to award a contract no later than the second quarter of fiscal year 2008 for this improvement.

Mr. Chairman, I want to thank you and the members of the House Armed Services Committee for your continued support of the SOF soldiers, sailors, airmen, and marines, and our dedicated USSOCOM families. In particular, I would like to thank you for your support of SPEAR, the SPEAR program, and request your continued support in the future for all SOF operators.

Sir, I am available to take of any of your questions.

[The prepared statement of Colonel Noonan can be found in the Appendix on page 111.]

Dr. SNYDER. Mr. Solis, welcome back.

STATEMENT OF WILLIAM "BILL" M. SOLIS, DIRECTOR, DEFENSE CAPABILITIES AND MANAGEMENT ISSUES

Mr. SOLIS. Thank you, sir. Chairman Skelton, Ranking Member Hunter, and members of the subcommittee, thank you for the opportunity to appear before the committee to discuss our recently issued report on Interceptor Body Armor, which is currently used by our military. I will briefly summarize two key aspects of that report as relate to today's hearing.

Since 2003, U.S. Central Command has required service members and DOD civilians in its area of operations to be issued Interceptor Body Armor. Because of the broad congressional interest in

the adequacy of body armor for U.S. ground forces, we reviewed the extent to which Army and Marine Corps are, one, meeting ballistic and inventory requirements for body armor; and two, have controls in place to assure that manufacturing and fielding of body armor meet requirements.

With regard to the adequacy of ballistic protection and inventory requirements, the Army and Marine Corps Interceptor Body Armor is 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. The outer tactical vest currently provides protection from 9mm rounds, while the plate inserts provide an additional protection against 7.62 armor-piercing rounds. Additional protection can be provided for the shoulder, throat, and groin areas. In December, 2006, and January, 2007, Army and Marine Corps classified readiness reports for deployed and nondeployed units did not identify body armor as a critical equipment item affecting unit readiness.

With regards to testing, the Army and Marine Corps have controls in place during manufacturing and after fielding to assure that body armor meets requirements. Those services conduct quality and ballistic testing prior to fielding, and lots are rejected if standards are not met.

Samples of body armor are sent to the National Institute of Justice-certified lab for live ballistic testing, and to the Defense Contract Management Agency for quality testing, which includes testing for size, weight, and stitching, prior to issuance to the troops. After the body armor systems have been fielded, both the Army and Marine Corps conduct limited tests to determine if there had been any degradation to the outer tactical vest or the inserts.

Mr. Chairman, this concludes my oral statement, and I will be happy to answer any questions that you or the committee may have.

[The prepared statement of Mr. Solis can be found in the Appendix on page 157.]

The CHAIRMAN. Dr. John Morgan, please.

STATEMENT OF DR. JONATHAN MORGAN, DEPUTY DIRECTOR, NATIONAL INSTITUTE OF JUSTICE.

Dr. MORGAN. Thank you. Mr. Chairman, members of the committee, I am pleased to testify today on behalf of the Department of Justice's Office of Justice Programs' National Institute of Justice concerning NIJ's body armor compliance testing program. NIJ is the research, development and evaluation agency of the Department of Justice, and our mission is to advance scientific research, development and evaluation to enhance the administration of justice and public safety.

For 30 years, NIJ has administered a body armor compliance program. During that time, over 3,000 officers' lives have been saved by NIJ-compliant body armor. The program is administered through the National Law Enforcement and Corrections Technology Center, NLECTC, in Rockville, Maryland; and scientific research and technical support for the body armor program are provided by the Office of Law Enforcement Standards within the De-

partment of Commerce's National Institute of Standards and Technology.

The purpose of the Body Armor Compliance Testing Program is to enhance the confidence of public safety agencies and officers that body armor used for public safety applications is safe and reliable and meets minimum performance requirements throughout the manufacturer-declared warranty period. Like NIJ's other performance standards, the body armor standard is a collaborative effort among Federal, State, and local public safety agencies, the scientific community, and the commercial sector.

It is important to emphasize that NIJ's standards development process focuses on the operational needs and requirements of civilian law enforcement officers and the threats they commonly face in the performance of their duties, which are significantly different than threats faced in the military combat environment. While NIJ and military agencies routinely exchange technical information about body armor, the two test programs are very different from one another because the operational requirements of police officers and soldiers are very different.

Although NIJ's compliance testing programs rely on voluntary participation by suppliers, most police departments require that equipment be tested and then evaluated and found in conformance with NIJ standards before they purchase the equipment. As a result, most manufacturers for law enforcement body armor design their equipment to comply with the standards and have each model tested for conformance with NIJ.

Since May of 2006, Pinnacle Armor has submitted seven models of Dragon Skin-based armor to NIJ's Body Armor Compliance Program. NIJ and its partners, NITS and OLES, have developed a flexible armor protocol which was specifically designed to test the perceived vulnerabilities to angled shots of Dragon Skin and similar armor consisting of multiple or tiled plate systems. Two of the seven models were resubmitted after inconclusive results, resulting in a total of nine submissions by the company of Dragon Skin-based models. The results for these nine submissions are five failed to comply with the NIJ standard, one passed NIJ compliance testing and was issued a letter of compliance, two were found to be inconclusive and were not found compliant, and one is pending.

Pinnacle Armor has submitted two different armor configurations. The first configuration of armor uses an existing 3a-compliant model and has a 10-by–12 hard armor plate insert which is intended to bring the level of protection up to the level III requirements. We call this the In Conjunction Model. That In Conjunction Model—one In Conjunction Model has passed compliance testing and is listed on NIJ's list of armor models that comply with the standard; that is referred to as the SOV 2000.1/MIL 3AF01 model.

Pinnacle Armor has also submitted two models of In Conjunction Dragon Skin armor with the SOV 3000 level IV plate. The SOV 3000 level IV system failed to comply with the NIJ standard on its first submission. The second submission of the level IV In Conjunction System, the SOV 3000.1 is currently pending.

The second configuration Pinnacle Armor submitted for level III protection utilized the Dragon Skin technology throughout the armor panel and looks more like the traditional level 3a vest that

provides full front, back, and side armor protection for the upper torso. Pinnacle Armor has given this type of system a model designation that ended in MIL, for example, SOV 2000-MIL or SOV 2000.1/MIL. These models appear to be similar in construction to models that have been subjected to military testing such as you see on the table, but NIJ and its technical partners have not compared the models directly. No Dragon Skin-based armor in this configuration, the second configuration, has passed NIJ compliance.

We have submitted to the committee a complete and detailed timeline and description of NIJ's testing on Dragon Skin-based armor. And I thank you for your time and attention and welcome your questions.

The CHAIRMAN. Dr. Morgan, thank you.

I am going to ask the staff to pass down to you two documents, Dr. Morgan. One, dated April 14, 2006, is apparently an attachment to Dragon Skin body armor, entitled Pinnacle Armor, stating that the manufacturer certifies that this model of armor has been tested through NLECTC and has been found to comply with type III performance in accordance with NIJ standard 0101.4.

I will also pass down to you a letter dated December 20, 2006, signed by you, that is a notice of compliance with NIJ 2005 interim requirements level III; and I will ask you if these two documents are accurately and correctly stated by me.

Dr. MORGAN. Yes.

The CHAIRMAN. I ask unanimous consent that both be placed in the record. Without objection.

Doctor, thank you.

Mr. Hunter.

[The information referred to can be found in the Appendix on page 173.]

Mr. HUNTER. Thank you, Mr. Chairman. And thank you, gentlemen, for the composite presentation that you have made here. Let me just make an observation.

I think it is clear that we need to have another test. I think there are about three cross-currents working in this hearing. One is that there is lots of, I think, mishandling of this issue by the contractor. And I related that to him, especially in terms of communication, in terms of statements made about the professionalism of the United States Army, statements made about the professionalism of our staff members and people who have been connected with this program in any way. And I think that is clearly, you know, disturbing.

It happens in this show business that we call the function of government, where you have lots of agencies and you have got a big—we have got a big military bureaucracy, a big congressional bureaucracy, and folks on the outside selling their products. And often we have clashes of personalities and people. And all those things go into the mix through which we ultimately derive our weapons systems.

This is an interesting case because, underneath all of this, the inconsistencies—and I think the statement made by Phil Coyle, one of the most respected guys in this business, who was our top tester for many years, that the Dragon Skin is, quote, "not ready for prime time," I think is a very telling statement that should go out to everybody who is considering purchasing it.

Nonetheless, in my estimation, Mr. Chairman, I think we need to sweep all of the underbrush aside and look directly at the key question, which is, does this technology have some value? And is it, in fact—if we test it with a straight-up, side-by-side test, will it demonstrate values that either now or, if changed somewhat, if adapted, would save more lives of our folks in theater? And I am thinking about not only bullet penetration, but also frag penetration.

It is unclear as to what the coverage is. The contractor says you have got more coverage than you have with the Interceptor Body Armor. He said that his systems were 24 pounds. I know you have got—you have done a weigh-in here in which one set is over 40. So there are lots of things that need to be cleared up, but here is what I think we need do.

I think we need to straight away, in an expeditious way, find out if there is value to this system; and there may well be. And if there is value, I think we need to extract it as quickly as possible and get it to the troops in field. And we have the 1-page document that this committee put into the law that the Secretary of Defense can sign; if he is taking casualties on the battlefield, he can sign that and he can bypass acquisition regulations. And certainly we are taking casualties, and we are taking them from small arms fire.

Although it is clear that the Interceptor Body Armor has a good record that has been laid out here. So this is one of those unusual cases in which I know the Army has got its back up, probably justifiably so; we have kind of got our backs up, and justifiably so. On the other hand, you have a technology which may have some value, and none of these things come wrapped in neat packages.

So, Mr. Chairman, my recommendation is—I know there are a few unanswered questions. One should be on that complete penetration versus noncomplete penetration that showed up on this test. And I think the Army has some answering to do on that. I think that was a valid point that was raised by the contractor. But assuming that that can be—that there is a rationale for that that is justifiable, I think we need to have the complete test and get it done quickly, expeditiously. And if there is value to this system either in this form or a modified form, utilize it. Let's get it to the field and let's get it to our troops.

So, Mr. Chairman, it has been a very interesting hearing, with lots and lots of dimensions. And maybe, General Thompson, you could speak briefly—or whoever is expert in this area—as to this penetration versus nonpenetration, because I thought the contractor had a good point on that one. It looked like—I think I could see those bullets embedded, and it didn't look like there was complete penetration.

What is the story there?

General THOMPSON. Sir, I would like to address that, and are you all prepared to show the——

The CHAIRMAN. We can't hear you, General.

General THOMPSON. I am prepared to address that, but what I would like to show you is the actual footage of the shot where Mr. Neal observed the shot, and show you that penetration. And then I will ask either General Brown or Karl Masters, who observed that test, to explain this difference.

Now this is the shot that was referred to as the penetrator being left on top of the plates. And what we are going to show you here is that the penetrator was not left on top of the plates, and it was a complete penetration, because of the penetration of the ballistic clay behind there.

And that was Mr. Neal in the footage.

Mr. HUNTER. I don't understand. What are you saying? I thought Mr. Neal's claim was—he said it didn't go all the way through because you can see it still lodged in the plate.

General THOMPSON. The x-ray shows residual metal that is there, and that could be part of the jacket. But the penetrator went all the way through the vest. And we are going to see it.

Mr. HUNTER. So you are saying the bullet came apart and part of it went through the vest?

General THOMPSON. Yes, sir.

Mr. HUNTER. So there was a complete penetration?

General THOMPSON. There was a complete penetration.

Mr. HUNTER. How much of that bullet got through?

General THOMPSON. I am going to show you that.

Mr. HUNTER. Okay.

General THOMPSON. There was the shot.

Dr. SNYDER. Mr. Hunter, would you yield for just a follow-up?

Mr. HUNTER. Absolutely.

Dr. SNYDER. General, when the x-rays are done, you have got a portable x-ray machine that is rolled out there and they just x-ray it right there? Is that how that works?

When are the x-rays done? After the shot?

General THOMPSON. No, the x-rays are done right there.

Dr. SNYDER. While they are still hung up there?

General THOMPSON. Okay. Mr. Masters is showing me. He is going to show you the penetration through the thing into the ballistic clay.

And then we actually pull the vest off and x ray it with an x ray machine which is right on site, right there.

And so this is the shot where Mr. Neal said it did not go all the way through; and you saw his head in the picture as he observed that, and then you can see here the penetration in the ballistic clay. And the H.P. White Laboratory representative is measuring that penetration into the ballistic clay.

The CHAIRMAN. The record shows there was a hole behind the vest; is that correct?

General THOMPSON. That is correct, sir. And that is Mr. Neal right there observing the complete penetration.

General BROWN. You see there they are trying to dig out the round. And that is Mr. Neal observing them digging out the round. And they are having some difficulty. The clock up in the upper center is real time.

The CHAIRMAN. So when Mr. Neal——

General BROWN. He is going around the back now to see if it went all the way through the ballistic clay.

The CHAIRMAN. When Mr. Neal told us a few moments ago he could see the bullet, that wasn't a bullet in that hole.

General BROWN. No, sir. The impact physics of a round hitting the target is a very violent act, by design. And a slug, a round,

sometimes it is a misnomer, it is not actually a slug of solid, formal material.

The CHAIRMAN. So Mr. Neal's testimony is incorrect.

General BROWN. Correct, sir. It is a full metal jacket. And what you saw in that x-ray is residue of the metal jacket and some of the interior material of the round.

Mr. CONAWAY. Can we explain the two different clocks running? There are two different dates at the top of the screen.

General BROWN. I believe one is actual time and one is test time. The time that we made the video.

The CHAIRMAN. Mr. Taylor has a follow-up question, too, then, if Mr. Hunter will yield.

Go ahead.

Mr. TAYLOR. Thank you.

I asked Mr. Neal just a few minutes ago regarding that shot, if he was wearing that vest, would he have lived. And he said "yes."

General THOMPSON. Yes, he did say that. I listened to the testimony and——

Mr. TAYLOR. What would be your response to that, General?

General BROWN. I would say he may have lived, but he would have also been penetrated by a round.

Mr. SAXTON. Mr. Chairman.

The CHAIRMAN. Mr. Saxton.

Mr. SAXTON. Just to tie this down, the test that we saw the film of was the so-called, quote, "motor oil test"; is that right?

General BROWN. Yes, sir, that was the motor oil test.

The CHAIRMAN. Okay.

Now, as to the 5-minute rule, Mr. Taylor.

Mr. TAYLOR. Thank you, Mr. Chairman.

And I very much appreciate you being here, because I would like you on a point-by-point basis to walk through some of the statements that were made. If I understand Mr. Neal, he said that there was no penetration, that if he was wearing that vest, he would have lived. And so my question to you is, after what you have shown us, was there penetration? Was it of an amount that a medical professional, such as Dr. Snyder, would have considered a critical wound? Was this a one-time event or did this happen on several occasions?

And just for the heck of it, when you talk about motor oil exposure, was this vest soaked in motor oil for a period of days? Was some splashed on it? Just for my information, and same thing with the diesel fuel test, was it a matter of splashing some on there? Was it immersed in the substance?

Walk us through that, please.

General BROWN. Okay, sir, I will try to get to every one of the points.

Number one, it was a complete penetration.

Number two, it would have entered the human body. Whether the subject, test subject, would have lived or not, if it had severed an aortic arch or spine, clearly the individual would have died. If it had gone into another part of the body, the individual may have lived.

The subject test item is soaked in diesel for 2 hours and then allowed to drip dry and then tested at that point.

And your other questions were, sir?

Same with the motor oil and the diesel. They are both soaked for two hours and then allowed to drip dry and then fired.

Mr. TAYLOR. General, in your opinion, do you feel like Mr. Neal lied to this committee?

General BROWN. Sir——

Mr. TAYLOR. He made a blanket statement that that round did not penetrate that vest.

General BROWN. Sir, in my personal opinion, Mr. Neal was not correct. Now, whether he intentionally misrepresented what he knew to be the truth or not, I can't say. But he—in my personal opinion, he was incorrect.

Mr. TAYLOR. General Thompson.

General THOMPSON. Sir, what I would like to say is one of the things we did in this test—Mr. Neal observed all these tests—we taped, videotaped the entire procedure, and Mr. Neal was present during the entire test. And of the eight vests that we tested, four failed. Forty-eight shots for the record. Thirteen of those shots were first- or second-round penetrations, and those are complete failures by our test standard for level IV armor, which is the armor protection we provide to our men and women.

Mr. TAYLOR. In the time I have remaining, a matter of curiosity: I see a few gray hairs there, and obviously a lot of combat experience based upon the ribbons on your chest. So I am not going to ask about yourselves, but if you have, or if the scenario would be you had a son or daughter in uniform, which set of armor would you want for your son or daughter in uniform?

Is it what we are presently buying? Is it the Dragon Skin? Or is there another brand out there that our Nation should be looking at?

General BROWN. Sir, I do have a daughter; she is not in the military service. But today, as we speak, I do have 160 of my personal employees in theater today in Afghanistan, in Iraq and Kuwait. Also, my direct reports have sons and daughters over there. My director of the Rapid Fielding Initiative, Colonel Mike Bonheim's son is over there. My director of Personnel Administration, her son is over there. My sergeant major, who is with us today, Sergeant Major Coleman, his brother is headed there. And for all of them, and myself—I am going over there very soon—I intend to wear Interceptor Body Armor. And for all of them I would recommend Interceptor Body Armor.

Mr. TAYLOR. Does anyone have an answer contrary to that? Could we say for the record that this panel, if given the opportunity of placing one set of armor or the other on their child going into combat—let's just, while we are here, each one of you say it.

Mr. ROGER SMITH. Sir, I don't any children, but I personally wore an Interceptor armor in Iraq, probably like many of you have on your Congressional Delegations (CODELS) over there, and I would prefer that over any other because it is tested and evaluated.

Mr. TAYLOR. Colonel Smith.

Colonel SMITH. Sir, I do have a son, and if he were to go to Iraq or Afghanistan, he would wear the Interceptor Body Armor without a question.

Mr. TAYLOR. And that would be your preference?

Colonel SMITH. Yes, sir, it would.

Mr. TAYLOR. Mr. Thomas.

Mr. THOMAS. Fortunately, I am too young to have a son in the Air Force or the military, but if I did I would want them to wear the Interceptor as opposed to the Dragon Skin.

Mr. TAYLOR. Colonel Noonan.

Colonel NOONAN. Sir, I have three sons, none currently in service. However, if they were in service and did deploy, I would require them and want them to wear—and let me use the terminology a little bit differently. We all in our briefings talked about the name of a product. In reality, we are using a technology, and that technology is a monolithic, solid-plate technology, which is currently tested and evaluated to meet the AP2 armor requirement.

That is what we all in the services currently utilize under some different name; and that would be the product that I would have my son go to deploy with, sir.

Mr. TAYLOR. Mr. Solis. Dr. Morgan.

Mr. SOLIS. I have a son who is in the military. And if I had—I would prefer that he would go with the IBA, since that has been tested and evaluated to this point.

Dr. MORGAN. I have three small children, and should they ever serve in the military, I think that they would be best served by using the Interceptor armor. There is no question.

Mr. TAYLOR. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

General Thompson, let me make an official request of you. I wish to ask the Army to provide the H.P. White Laboratory test reports to this committee so we can make them part of this hearing.

[The information referred to is retained in the committee files and can be viewed upon request.]

The CHAIRMAN. Let the record show the two scales in front of us. The Dragon Skin scale shows what, General Thompson, on weight? Can you see it?

Mr. SAXTON. It shows close to 50.

General THOMPSON. It should show 47, 47.5 versus 28 pounds.

The CHAIRMAN. Thank you. And the currently used Interceptor weight, as shown, by what on the scales?

VOICE. Sir, what I am looking at is about 27.8 pounds, sir.

The CHAIRMAN. Twenty-seven point eight pounds. Let the record show that.

We have a total of four votes coming up, one 15-minute, three 5-minutes. If we don't finish, gentlemen, we are going to ask you to stick around, but we will see how far we can go.

Mr. Saxton.

Mr. SAXTON. Thank you, Mr. Chairman. Let me just follow up on your mention of the scales and the equipment in front of us.

Mr. Neal, when I asked Mr. Neal about the weight differential, Mr. Neal said it was like comparing apples and oranges. And as I look at the information that was provided to us by you in a previous hearing, I noticed that on this sheet the Interceptor Body Armor was size large and the Pinnacle Armor was size extra large. And I believe you explained why that was, previously, to us.

Would you tell us why this is not like comparing apples and oranges, if indeed it isn't?

General THOMPSON. Sir, I will kick it to General Brown here if I don't get this quite right, but it is the difference in sizing based on the manufacturer. Just like you go to a clothing sales store and buy clothes for you, some manufacturers manufacture things a little bit differently.

For a soldier that would need to wear either the Pinnacle or the IBA body armor, these are the two sizes that would give a soldier of a certain body size the comparable level of vest to be able to put on. And so that is why there is a large and an extra large.

Mr. SAXTON. Can you explain why Mr. Neal believes that the appropriate level of protection can be provided with his system with 27 pounds, which is what he indicated earlier?

General BROWN. We asked him to provide a system that would simulate the front and back plates and the side plates. And when you put all those disks in—as you see, there are side-plate equivalents in there—when you have that triple, overlapping disk, it tends to start to drive the weight up.

But what we sought to achieve was a similar, comparable area of coverage, area of protection. And it actually in this test case for area of coverage, we actually advantaged Pinnacle by giving them—I believe the number was about 20 square inches more in area of coverage by going with this methodology.

But it is simply a matter that the Pinnacle vests generally run a size small compared to the Interceptor Body Armor, and we wanted to get as close as we could in area of coverage.

Mr. SAXTON. And is it true that—as it says here on your sheet, that the Interceptor Body Armor that we see here provides 720 square inches of coverage and the Pinnacle body armor that see we has 743 square inches of coverage? Is that about right?

General BROWN. Yes, sir, that is our assertion.

Mr. SAXTON. I did some math, and my math says it is 3 percent more with the Pinnacle Armor than it is with the Interceptor armor.

General BROWN. Yes, sir. As I stated, we actually advantaged Pinnacle in this test in area of coverage.

Mr. SAXTON. But the three percent is a marginal advantage, isn't it?

General BROWN. Yes, sir. Had we gone with a large Pinnacle rather than an extra large, it would have been marginally smaller.

Mr. SAXTON. So providing the same body—roughly the same body coverage, 3 percent more for Pinnacle, we see a 47.5-pound Pinnacle Armor system and a 28-pound Interceptor system; is that correct?

General BROWN. Yes, sir.

Mr. CONAWAY. Mr. Saxton, is the definition of coverage the same for both vests in terms of ballistic coverage?

General BROWN. Yes, sir.

The CHAIRMAN. Thank you, gentlemen.

Dr. Snyder.

Dr. SNYDER. Thank you, Mr. Chairman.

General Thompson, I want to quibble with you a little bit. I don't think this is NBC's problem; I think this is our problem. We have got a lot of military families out there and people in the public that have questions about this. And for whatever reason it has been

generated, we all need to do a better job of answering it. And the reality is, the NBC show, there are some questions to be asked about what NBC showed.

I want to know why the, what they are calling the Interceptor in that NBC show, why it did not perform better, why it did not perform comparable to what General Brown has showed us in the closed briefings before. It may be because it didn't come from one of the vendors. It may be that there are some other questions to be answered.

Have you all reached any conclusions about why the Interceptor didn't—what did you call it, the fixed, the generic term for it—why the IBA did not perform on the NBC show as you would have expected?

General THOMPSON. I will kick it off, and I will let General Brown pick it up, but the reality is, I don't know. I know they tested from one manufacturer. And like I said in my testimony, that was not one of the six manufacturers of the plates for us.

Dr. SNYDER. Right.

General THOMPSON. I don't know what their test protocol is. I don't know exactly the product that they tested. So it is very difficult, without factual information, to evaluate the results that they are claiming on the test that was done in Germany.

And so for them to have the same test protocol as we do, I don't know that, because they have not been forthcoming with that information although they have been asked.

Dr. SNYDER. General Brown, you have anything to add?

General BROWN. Yes, sir. As General Thompson alluded to, we have six primary producers of body armor plate ESAPI. The quantities and the quality assurance procedures and the test procedures are very tightly controlled with those plate suppliers.

And we also mentioned in the early part of our statement that we see the press as a key pillar to our democracy, and therefore we must keep the American public informed. For that reason, we cooperated fully with NBC on this interview. We gave NBC everything we had, showed them everything; and what we were concerned about was that, when the report came out, they had done serious damage to the confidence of soldiers, but more importantly, the confidence of soldiers' families in their equipment.

As I watched the show unfold, many questions were raised in my head about the quality and the effectiveness and objectivity of that test. The first part was, we have different colors that constitute what calls an ESAPI plate or a SAPI plate or some other kind of plate. And as I saw the flashes across the screen, the plates that I saw did not appear to be ESAPI plates based on the color coding that we know.

Dr. SNYDER. I think those are the kinds of questions that are raised.

I want to ask another question. We are running out of time here.

One of the things Mr. Neal talked about was, in one of the tests that you all conducted he had an adhesive tape problem.

General BROWN. Right.

Dr. SNYDER. And that it went through an area that didn't have plates. Essentially, what he was asking—it seemed to me that he was implying that he should get a do-over. How does that work

out? Doesn't that create some—I mean, he is going to say that he has corrected the problem, and I am sure he has, but it does create some issues. How do you handle that when you have tested other things and there clearly was some technical problem?

You were trying to test the plates themselves, but the plates weren't there because they had dropped away. Do you get do-overs in these things?

General BROWN. Before I get to the do-over aspect, the second major flaw in the test was that the Pinnacle body armor was tested in a flat mode rather than a curvature mode. Because the human body is a curved shape——

Dr. SNYDER. You mean, it was hanging flat against——

General BROWN. Right. And that would have caused the Pinnacle body armor to perform better. And then Honorable Mr. Coyle's testimony, he said they were using the 7.62 x 54 round, which is not the test round. The 7.62 x 63 APM2 is the test round which we specifically selected to put in a wider margin of safety into the plates. So that may also account for why the plate performed better.

Dr. SNYDER. A do-over.

General THOMPSON. And just to make it clear, what General Brown is referring to is, when it was tested flat—it was the test run by NBC in Germany where it was tested flat; when we tested the body armor in our test, it was tested in a curved configuration, which is the way it is worn by soldiers. And you saw that in the picture of the curve of the Pinnacle Armor around the ballistic clay.

Dr. SNYDER. And the question on do-overs?

General BROWN. When you go into the test, it is like an examination, the GRE, the GMAT, the LSAT. You go in and that is the test. You take the test, and the standard for passing the test is zero penetrations; at the first penetration, that test was failed. There are no do-overs.

However, we have made it clear that should they make a product improvement, we are willing to relook at their system again, do appropriate procedures.

The CHAIRMAN. We have less than 2 minutes to make the vote. Mr. Saxton has a question.

Mr. SAXTON. Thank you, Mr. Chairman. I am told by some of our smart staff here behind me that I need to ask this question, and we have to go vote, so perhaps you can answer this for us in writing.

The question is, how much armor-piercing round coverage is there in IBA versus Pinnacle? And I ask this question because we want to make sure we get all the facts out on the table and be fair to both Pinnacle as well as the currently used Interceptor Body Armor.

[The information referred to can be found in the Appendix beginning on page 217.]

The CHAIRMAN. We will be in recess until after the votes. And thank you for waiting.

[Recess.]

Dr. SNYDER [presiding]. I wanted to—we will come back to order.

General Thompson—I had two or three questions that came up during the break. General Thompson, is there currently an RFP out? You are seeking proposals now; is that correct?

Now, Mr. Neal in his testimony said earlier that by the nature of past RFPs he thought there were several that, because his is considered a flexible system, would not even be eligible to be considered. If he were to submit—has he submitted a proposal? And if he does, will he be considered, or by the nature of the disk versus the monolithic form, would he not be eligible for that RFP?

General THOMPSON. I think that is a great question. Right now there is a request for proposal on the street that was issued on 25 May. That request for proposal is for continuation of ESAPI, or if somebody has got a solution that is better protection beyond ESAPI, they have the opportunity to bring that in.

And so, I heard what the committee said today and I have heard the discussion about side by side. But let me say this about side-by-side. Side-by-side doesn't have to be at the same time. Side-by-side, to me, is testing to the same standard, which we have done with the six producers of the plates today. And we used that same standard to test the Pinnacle product not just in May, 2006, but on five previous—four previous occasions before that.

Dr. SNYDER. Will your current six vendors, will they have to re-apply for this RFP?

General THOMPSON. Anybody that wants to continue to produce for us has got to respond to this RFP.

Dr. SNYDER. Okay.

General THOMPSON. So I think the way ahead here very clearly is not an individual side-by-side between IBA and Pinnacle.

I heard what Mr. Neal said about responding to our RFPs. I checked with the program office here. He has not responded to our RFPs for body armor level IV. But we have the RFP on the street; 60 days from 25 May, which is the end of July, anybody that has got a product that can be put forward to be considered, to include Pinnacle—if Pinnacle puts forward their product to this RFP, we will test it along with every other competitor that comes forward out there.

And I think that is a fair and reasonable way ahead, because then they will get the time to respond to the RFP. But if they don't respond to the RFP, as an acquisition professional, I think it would be unfair to the other competitors to test them individually.

So I think the way ahead here is, 60 days from now, whoever responds to that RFP—and I hope Pinnacle does respond—we will test to that standard. We will test by the Army Test and Evaluation Command. We will pick an objective site; and I will tell you right now we won't pick H.P. White for this one.

In the audience today, and I talked to him yesterday, and I just talked to him a few minutes ago, is the current head of live fire testing for DOD, Mr. Rick Sayers, and we will have DOT&E, Director of Operational Test and Evaluation, the organization that Mr. Coyle used to head, oversee the ATEC testing of whoever responds to that RFP by the end of July.

And I think that is a reasonable way ahead here for the committee, for the Army, and for Pinnacle, should they choose to respond to the RFP.

Dr. SNYDER. One more question and then we will go to Mr. Jones.

In the discussion just before we broke, we were talking about the do-over, where they had the, I think it was—as Mr. Neal described it, I think it was an adhesive tape problem, that they dealt with with their producer and changed their process, and he believes he has got it corrected.

Now that was in the May 2006 testing; is that correct? My question is, are you aware, did the Dragon Skin—did Mr. Neal's company do any kind of notification to those people who bought the Dragon Skin prior to the discovery of that adhesive tape problem? Do we have people in Iraq and Afghanistan today wearing that body armor that was purchased prior to that date that may not be aware that they have got an adhesive tape that has come apart and some of their disks have fallen down?

General BROWN. Sir, if I can rephrase your question, I believe it is, has there been a retrofit or a look back at systems that may already be in service to make sure those people are not as risk?

Dr. SNYDER. That is exactly what I meant to say, General.

General BROWN. The CENTCOM AOR Safety of Use Message applies to all personnel in CENTCOM that says Interceptor Body Armor is the armor. So if they are CENTCOM personnel and they are wearing Dragon Skin, they are doing so without the graces, good graces of CENTCOM.

To my knowledge, there has been no retrofit or relook actions on systems.

Dr. SNYDER. Or a recall?

General Thompson, that may be something that you all would want to look into if you have significant numbers of your personnel that are wearing something that, in your testing, you discovered had a manufacturing flaw that the manufacturer has since corrected.

But I will leave that—if you would, get back to us on that and let us know.

General THOMPSON. There was some sets out there that were bought by protective services details, for example. Since we issued the Safety of Use Message, all of those have been recalled and turned in, and to our knowledge, nobody is wearing the Dragon Skin in theater today.

Dr. SNYDER. Mr. Jones.

Mr. JONES. Mr. Chairman, thank you.

Dr. SNYDER. Mr. Jones, could we let Mr. Taylor do a unanimous consent, and then I will get back to you?

Mr. JONES. Is that my friend from Mississippi? I will yield.

Mr. TAYLOR. I thank the gentleman from North Carolina.

Mr. Chairman and gentlemen, I would like to ask unanimous consent that the Seapower Subcommittee be allowed to meet and have a hearing on waterside protection of our naval vessels while this committee meets.

Dr. SNYDER. Without objection.

Mr. Jones. Excuse me, Mr. Jones.

Mr. JONES. Mr. Chairman, thank you.

General Thompson, I was watching the tests on the film that you showed the committee, and I don't know Mr. Neal. I am sure he is a fine gentleman, just like everybody on the panel today, but I am amazed—I was amazed to see the size of the hole from the fir-

ing from the test, and I was wondering if anyone was around him when you were, you know, showing him just how severe the hole of the shot was.

Was there any comments from him? Were you present, or any of your assistants present; or does anybody remember any comment that he might have made?

General BROWN. Sir, my test director, Lieutenant Colonel (Retired) Karl Masters is present, and he was the test director, and was present at the test site. I will let him answer that.

Mr. JONES. If it is permissible, Mr. Chairman. To me, I would—as a man wanting to sell this to the military to protect their lives, I would be so—excuse the expression—but shell-shocked, I would probably say some things that I would be—was anything said?

General BROWN. Mr. Chairman, with permission, would you like to hear from Lieutenant Colonel (Retired) Masters?

The CHAIRMAN. Certainly.

Colonel MASTERS. Mr. Chairman——

The CHAIRMAN. Would you identify yourself, please.

Colonel MASTERS. My name is Lieutenant Colonel Karl Masters, Retired, United States Army.

I currently—as the lead engineer for PEO Soldier Equipment on all body armor, I ran and supervised the test at H.P. White in May of 2006, and was present on the range with Mr. Murray Neal. And as a matter of fact, I escorted Mr. Neal to the various locations within the range and had some discussions with him.

Dr. SNYDER. Pull that mike in a little closer, if you would.

Colonel MASTERS. Sir, to answer your direct questions in terms of what Mr. Neal's observations were, basically we had very professional exchanges about the happenings with regard to particular shots in terms of complete penetrations or partial penetrations. But there was no outward expression of emotion by anyone on the range that day. It was just observation of the test results as they transpired, sir.

Mr. JONES. Well, I know that you, on both sides, are professionals, and I wouldn't expect the same reaction that—maybe if I was there and I had made the body armor, I would certainly be—but then I am not being critical.

Mr. Chairman, you picked up on something that I was going to do myself. I wonder and am concerned that if so much of what is happening in the theater today is on the Internet, one way or the other—people can e-mail their families in a matter of seconds, and there can be a product advertised, and so those troops in the theater can see it. And maybe, you know, your point was, I think, and what my point would have been is, are the troops so—do you feel that many of the troops feel that the Dragon Skin is the right vest to have? Or is it—is there any concern on your part that their families are wanting to buy the $5,000 vest because they believe it is better than the vest that has been issued by the military?

This is somewhat along the lines of what the chairman asked.

General BROWN. Sir, you are asking about my feelings. And what I have is some experience with soldiers recently back from theater.

There are about 230,000 soldiers deployed around the world in 120 different countries today, and with that number of people deployed, you are going to have a few that probably feel differently

than others. But my general reception from soldiers is that they are very happy with the Interceptor Body Armor. Many testimonials about lives saved, and as a matter of fact, we have given the committee those testimonials. And that is why we brought Specialist Miller from the 101st Screaming Eagles here today.

With the chairman's permission, if you would like to ask him, I think it would probably be a better—you would get a better, more accurate response than from myself.

Dr. SNYDER. It is your time, Mr. Jones.

Mr. JONES. Mr. Chairman, I am sure that if they are here, they should certainly speak. And maybe one.

My question is, do you think that there is an agreement with those whom you serve with? The majority say that we accept this as the best protection out, and they are not questioning whether it should be the Dragon Skin.

One individual, just say it or speak would be fine, and then I will close.

Major COLEMAN. Sir, I will step up with the soldiers that I brought here. I think our body armor——

Dr. SNYDER. Let's have you use the microphone, please. Identify yourself, and please use the mike.

Major COLEMAN. Sir, I am Sergeant Major Tom Coleman. I am the PEO Sergeant Major, been there 5 months right now. I came out of theater with the 101st with the specialist.

The body armor that we have right now is the right body armor. The feeling in the force is that it is doing what it is supposed to be doing. Everyone will tell you that they want it lighter; that is a fact. And they want something that always fits better, is lighter, they can move faster with.

So there is no discontent that I see out there right now. There is a lot of concern, I am getting it from my peers in the field that are questioning me on the body armor just because of the news media. And as a sergeant major, that is my number one concern, the soldiers and soldiers' families, and the perception of our current equipment.

But we believe it is good.

Mr. JONES. Mr. Chairman, I know my timehas expired. If I could make just one quick statement, I would hope from this hearing today—and I have been here most of the time, not all, as other members have. To me, the sadness of all this, first of all, is the troops have to have the best. But when shows—and I am not going to criticize any TV network. If they think they are doing the right thing, and they have done all the checks and balances that they should have done before they go to air, then that is fine; I will accept that.

But when I think about the parents who have these kids and loved ones in the theater, and they are seeing a show that says, well, this isn't the best body armor, this is, to me—I am not—I don't what the law is; I am not a lawyer, and I don't apologize for that, but I will tell you one thing.

When you are talking about selling a product to the military, and that product is not what it is advertised to be to save a life, then

to me, as far as I am concerned, that borders on violating some type of law.

And with that, I will yield back the balance of my time.

Dr. SNYDER. Mrs. Bordallo.

Ms. BORDALLO. Thank you, Mr. Chairman. I would like to thank you for calling this hearing today. I feel it is very important, and I thank all of the witnesses for testifying today.

The recent NBC report on body armor was very troubling to many of us, and we owe it to the men and women in uniform to get this right. However, today I have a little different question to ask. I hope it hasn't been asked already, but I want to address a larger question about funding for the research and development, testing and evaluation that count, specifically funding for research for new technologies.

In the fiscal year 2008 budget, the Department of Defense invested $11 billion in science and technology funding. This represents a 20 percent decrease over the previous fiscal year. In particular, the Army research budget dropped 39 percent and the Navy and Marine research budget dropped 18 percent. On the other hand, overall development accounts increased by $765 million, suggesting that we are spending a considerable amount more on development rather than research.

General Thompson, my question is to you. I am concerned that we spend a lot of money on development of products, but we do not spend enough on research of new technologies that will directly benefit our service members. So I am wondering if this situation is present in the case about body armor.

General THOMPSON. Ma'am, I think there is the right balance between the money that we spend on research and the money that we spend on development, because it is the early research that leads to the products that we develop, test, and then put into production.

Looking at a snapshot in one fiscal year, it is the trend over time that I would be more concerned about if there was a negative trend there.

I am confident, and I think General Brown would say the same thing, that we have the resources we need to do the research, to do the testing, and to find the best products out there for body armor.

Ms. BORDALLO. Let me just follow up on that.

In your testimony, I think that you insinuated that additional funding is necessary for research and development. Did you not say that in your testimony, General?

General THOMPSON. Ma'am, I did not say that today in my written testimony.

Ms. BORDALLO. No one mentioned that there needed to be more money? So you feel that the funding is balanced; is that your answer?

General THOMPSON. Yes, ma'am, I do. And if I go back to one of the statements that I did make, that force protection——

Dr. SNYDER. We have got to have you pull that microphone closer.

General THOMPSON. One of the things I did say is that force protection for our servicemen and women is our number one priority.

And if it is a question of priorities, if we need to put more money into force protection, specifically body armor, we would reprioritize from other places to put money against that because it is the number one priority.

Ms. BORDALLO. All right. I just, again—maybe I misunderstood when I read your testimony, but I did think that the development was up to par, but it is the new technology and the research where the money was short.

But perhaps—does anybody else want to answer that on the panel.

General BROWN. Ma'am? General Brown.

One of my responsibilities is also I am the commanding general of Natick Soldier System Center, which is 2,000 great Americans up in Massachusetts doing research and development on soldier items, everything from food to kitchens to uniforms, boots, body armor, helmets. We have $1 billion of research going on per year up at Natick Soldier System Center, and that research transitions over into my other organization, Program Executive Office Soldier, where we have about $4.4 billion a year to buy 400 separate programs of record.

As General Thompson mentioned, as a matter of priorities, the Hill has been very generous with us on force protection. I have all the force protection R&D that I need at this time. Of course, I would always like more money, but not necessarily for force protection.

You have got to be able to have a plan and a program to spend it, and we are spending quite a bit on force protection, in the billions, across the Army. So I think we are quite well funded in that particular priority.

Ms. BORDALLO. Thank you, Mr. Chairman.

Dr. SNYDER. I share your concern about the decrease in research dollars.

Mr. LoBiondo for 5 minutes.

Mr. LOBIONDO. Thank you, Mr. Chairman.

General Brown, a couple of minutes ago did you offer for Specialist Miller—I hope I got the rank correct—to say something, and Sergeant Major, not to take anything away from you, but I would like to hear from Specialist Miller, Mr. Chairman, if that is okay.

Dr. SNYDER. If you could use the microphone, please. Show these generals how to use the microphone.

Specialist MILLER. Sir, I can only speak for myself, and I think I can take the liberty of speaking for the guys that I directly work with; and that is that we trust our gear, sir.

Mr. LOBIONDO. Thank you very much. Thank you for your service.

Dr. SNYDER. Ms. Davis, do you have any further questions?

Ms. DAVIS OF CALIFORNIA. Yes. Thank you, Mr. Chairman, and I am sorry I missed some of the earlier discussion.

I think I heard everyone testify formally, but I wanted to go back very quickly to this side-by-side issue.

And has it been determined that, in fact, we are going to do that kind of—that you are going to do that kind of a test; is that correct? And when and what problems do you see with that?

General THOMPSON. Ma'am, I don't think you were in the room when I was asked that question. And my response was, there is a request for a proposal on the street today for any and all offers to bring in their products, to continue the ESAPI production or to produce something that has got greater capability than the ESAPI plates that we have today. Sixty days from May 25th, which is at the end of July, anybody that comes in with a product, we will evaluate that product, we will evaluate it by the Army Test and Evaluation Command.

We will have the director of Operational Test and Evaluation for OSD oversee that test. We will not conduct it at H.P. White because that was the concern raised earlier today.

But if Pinnacle wants to be evaluated, they have to respond to the RFP that is out there on the street today because if they don't, it is unfair to the other commercial competitors out there, that why would we test Pinnacle when they don't respond to the RFP.

So that would be my position. I think the Competition in Contracting Act and all of the acquisition acts we have got——

Ms. DAVIS OF CALIFORNIA. I understand that. There was a concern over the criteria or some of the elements that had to be assessed, and is that going to prohibit any companies who have something that is protective and yet perhaps doesn't adhere to this criteria that you set forth?

General BROWN. I believe that Pinnacle body armor was concerned that their particular technical solution, which are flexible disks, would not qualify under the current solicitation. They can produce a qualifying proposal under the current solicitation.

In the final analysis, what we are worried about is, does the solution stop the threat round? And if it stops the threat round, then next, is it suitable and effective? You know, can the soldier wear it and move, shoot, communicate, carry his other gear.

So we are not sold on any particular one technical solution. We want all commerce.

Ms. DAVIS OF CALIFORNIA. And was that a problem in the past that the technical solution was restricted in some way?

General BROWN. Clearly, in Mr. Neal's mind, it was, but in ours, it wasn't.

Ms. DAVIS OF CALIFORNIA. Thank you. That is helpful.

Is this the same body armor that the Iraqi troops are using?

General BROWN. No, ma'am. The only troops that have the Interceptor Body Armor are U.S. Army, U.S. Marines and other Department of Defense personnel.

Ms. DAVIS OF CALIFORNIA. How would you describe their body armor.

General BROWN. I would say it is effective to a certain level. It is not as effective as Interceptor Body Armor.

Ms. DAVIS OF CALIFORNIA. If I could follow up because the Oversight and Investigations Subcommittee is looking at the Iraqi army, is that body armor that we had used before; or where is that made and what do you know about that.

General BROWN. Ma'am, I am rapidly outside of my lane. The equipping of the new Iraqi army belongs to another general, and I believe his name is Brigadier General Clinton Anderson. I could be wrong about that.

General THOMPSON. Ma'am, I think we would take that one for the record and get back to you.

[The information referred to can be found in the Appendix beginning on page 223.]

Ms. DAVIS OF CALIFORNIA. And if in fact you were to find that one or several body armors met the standard and was equally efficacious, I don't know where you draw that line.

Once something meets the standard and then goes beyond that, what is the procedure for basically choosing something different and have we done that before? Is that something commonly done?

General THOMPSON. Yes, ma'am. Once you have one—if you have two or more that meet the standard, that is when we would do a true side-by-side against the standard and against the operational requirement, and we would pick the best one to go forward. And so—but you have got to meet the initial standard, and then we would do a true side-by-side.

General BROWN. There is the initial hurdle you have got to get over: Do you stop the threat round? And if you have multiple players or multiple solutions that stop the threat round, then you go out and put them side by side and go after the best solution, which is the best combination of area covered, flexibility, weight, ballistic protection.

General THOMPSON. General Brown makes a good point. It is not just the best ballistic protection. It is the total requirement. It is the modularity, it is the weights, it is to be able to wear that piece of equipment with all of the other gear that a soldier or service member has to carry. So it is not just ballistic protection——

Ms. DAVIS OF CALIFORNIA. I would actually include in motion, too, because I think that is an issue.

But I appreciate that, and I wanted to be certain that in fact, if we found that to be the case, that you move forward in a fashion to try and evaluate that so that we could have the best.

General THOMPSON. And one of the reminders that I was just given is, we make multiple awards to people. We don't have just one supplier; we have six current suppliers that have met the standard. And obviously the reason we do that is because you get the benefit of the competition when you have more than one supplier for a particular product.

Ms. DAVIS OF CALIFORNIA. Thank you, Mr. Chairman.

Dr. SNYDER. Thank you, gentlemen. Thank you, Ms. Davis.

Gentlemen, I wanted you to know that I learned some years ago when Mrs. Bordallo says something that is correct, that you better be careful to question her.

I want to read, General Thompson, from your written statement, quote, "We have all of the funding support we need to make sure that every soldier has the protection he or she needs. However, the Army is continually evaluating new technology, and additional funding for research and development would expedite that work," and that was from your statement.

So I think a number of us have concerns that maybe you all want to do more research than you can and the budget has not been so good.

Just one final comment with regard to this May 25th versus July 25th date.

Neither the chairman nor Ranking Member Hunter was here to hear your discussion as a way to resolve this testing. I know Mr. Neal did say he thought the middle of July was the soonest he could have the vests to test. That may work out well, but the chairman and ranking member may have some thoughts about this plan, too.

We appreciate you all being here. I think a lot of questions were answered. I am sure in the minds of a lot of people there were some questions that still need to be answered, and we appreciate your patience and being with us here today.

General THOMPSON. Before you wrap up, and I know you are dying to do that, but can I make two more points that I think are very important, and they need to be said for the record.

There was a question raised about the R&D going on amidst the shot raised by Mr. Neal. And the reference shots that were part of the testing were part of the first article test protocol. So there was no research and development activity going on when we tested Pinnacle's product in May of 2006.

And the other point I would make, we showed you the picture of one of the full penetrations where we looked at the x-ray, and Mr. Neal said that he didn't think that was a full penetration. If I showed you the other x-ray pictures where he made that same claim, you would also see full penetrations into the ballistic clay all the way through into the Pinnacle product. So it wasn't just that one; it was all of the x-ray pictures where there was something showing on the screen. It wasn't sitting on top of the plate. It was through the plate, and it was the residue that was left, but not the bullet itself.

I know we took the question for the record, but I would like General Brown to cover one more thing and that is the square foot coverage.

General BROWN. Yes, sir. Thank you.

The question is, how do you get to the large differential in weight, the 47.5 pounds versus the 28 pounds? Well, it is one of these situations where you can't have it both ways. On the one hand, Pinnacle Dragon Skin claims that they have 3.6 feet—square feet area rifle coverage for the SOV–3000. That very thing—as compared to the IBA, which has 2.6 square feet of rifle coverage, it is that very difference in rifle coverage weight that drives that weight up.

So, on the one hand, he would claim that we got 3.6 square feet of rifle coverage, but on the other hand, you would say we are only 27 pounds. Well, they are either/or; you can't have both. You either have to drive down your area of rifle coverage to get to 27 pounds or drive up your weight to get to 3.6 square feet. So it is a law of physics.

Dr. SNYDER. This has been a large panel. Some of you may have had some comments you wanted to make. You may submit those answers as statements for the record. Members may also have questions for the record that we hope you will respond to in a timely fashion so that may best utilize the information.

We appreciate you all being here. The committee is adjourned.

[Whereupon, at 3:05 p.m., the committee was adjourned.]

A P P E N D I X

JUNE 6, 2007

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

JUNE 6, 2007

House Armed Services Committee

Ike Skelton, Chairman

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Chairman Ike Skelton
Opening Statement
Full Committee Hearing re:
Department of Defense Body Armor Programs
June 6, 2007

"The committee will come to order. This morning the committee meets to receive testimony on Department of Defense body armor programs. We have with us today two panels of distinguished witnesses representing the military services, private industry, and independent agencies. I want to thank all of our witnesses in attendance today.

"The jurisdiction of this committee is such that we cover a very wide range of issues. But the significance of other issues pales relative to the importance of providing the best protection possible to our men and women serving in Operations Enduring Freedom and Iraqi Freedom.

"This committee has been at the forefront in providing necessary non-partisan oversight on the full spectrum of force protection matters. Since 2001 this committee has authorized over $5.1 billion to help the services procure body armor and expand the industrial base.

"Effective body armor is the baseline component to force protection and it is critical to promoting the survivability of military personnel serving in extreme combat environments. It has to work and it has to be the best available bar none.

"Recent media reports have suggested that we may not be providing the best body armor available. NBC News commissioned an independent round of limited ballistic tests that compared current body armor to another system called Dragon Skin. NBC indicates the results from these limited tests favor Dragon Skin over the current military interceptor body armor system or IBA.

"NBC tests contradict the information provided to this committee by military and Department of Defense officials in numerous hearings and briefings. Most recently the Army indicated to this committee in a closed briefing on May 24 that they conducted first article live fire ballistic tests on the Dragon Skin system in May of 2006. These tests also included environmental constraints such as subjecting the vests to extreme temperatures and fluids to ensure the vests would hold up to conditions troops might face

in the field. The Army tests indicated Dragon Skin failed to meet military body armor specifications.

"We're here today to gain a better understanding of the facts and to reassure our constituents that our goal remains ensuring that their sons and daughters are being provided the best body armor available. We owe them that. This committee takes its oversight role very seriously. If it is determined we aren't providing our troops the best body armor available, then this committee will fix that problem.

"Today's hearing should help Members understand the rigorous standardized test and evaluation procedures that are required for procuring effective body armor systems for the military and understand why these rigorous protocols are necessary. We need to understand what the military requirements are—whether the ability to stop incoming rounds, or the weight they put on a soldier or Marine, or the heat and cold they must be able to withstand in theaters like Iraq and Afghanistan.

"Understanding the requirements and the process should make it clear that this is more than a competition between two makers of body armor. A fair, open, and objective process would allow any manufacturer to bring a product to the Department for consideration. That is the best way to ensure that our troops will have access to the best products.

"Troops and their families must have confidence in the product they are wearing. I hope today's hearing will help shed some light on where we should go from here. But either way, I would urge the Army to conduct comprehensive first article tests of the current body armor system and the Pinnacle Dragon Skin system using an independent third party as control. This would ensure to everyone that we are providing the most capable, tactically suitable system available. We must continue to seek better, lighter, more effective body armor systems.

"Now let me say a couple practical words about the hearing today. Our goal is to present all sides of this issue. As such there are two panels and this is a big committee. I would urge members to keep their questions concise and to remember that we have a second panel. We should give the same courtesy to both panels.

"Also, it should be noted the committee did extend an official invitation to NBC News, retired General Wayne Downing, and retired Colonel (USMC) James Magee to provide their analysis of their ballistic side-by-side comparison tests. NBC declined to appear as did General Downing. Mr. Magee could not attend due to an unbreakable prior engagement but did submit a formal statement for the record.

"Before we introduce the first panel of witnesses for their opening remarks, I would like to recognize my good friend from California, the ranking Member Duncan Hunter for any remarks."

STATEMENT BY

HONORABLE NEAL ABERCROMBIE

FULL COMMITTEE HEARING

DEPARTMENT OF DEFENSE BODY ARMOR PROGRAMS

JUNE 6, 2007

FULL COMMITTEE HEARING
BODY ARMOR PROGRAMS
June 6, 2007

- Thank you Mr. Chairman,

- One of today's witnesses' written statement cites a concern regarding committee objectivity. Since this more directly relates to the Air and Land Forces subcommittee, of which I was the ranking Member in the last Congress and currently chair, I appreciate you allowing me to make opening comments.

- When the information we have from the Department of Defense on issues potentially affecting the lives of our military men and women is significantly different than what the media is telling the American people, I believe it is appropriate to try and determine the relevant facts. That process is made more difficult when the media, in this case NBC, declined and continues to decline to participate in the process.

- In a hearing last September and again in January of this year, the Air and Land Forces Subcommittee held a hearing on

active protection systems, because NBC claimed that the Army had blocked the fielding of an active protection system called "Trophy," that NBC asserted could have otherwise been fielded and be protecting personnel in Iraq. Further, NBC alleged that the Army had blocked the Trophy system in favor of the Army's preferred system made by Raytheon and also raised questions of how Raytheon was awarded the contract through the Future Combat Systems program for its active protection system.

- Last September, NBC used a quote from an unnamed senior Pentagon official saying that QUOTE "the Trophy active protection system is ready today. We need to get this capability into the hands of our war fighters ASAP because it will save lives." END QUOTE. That was not a factual statement then and it is not a factual statement now. An April, 2007 Institute of Defense Analyses report is cited by today's witness as confirming NBC's position. Again that is not the case. The Institute of Defense Analyses report, on the first page of the introduction says "no APS exists than can be deployed on U.S. combat vehicles today." At the time of our January hearing, the first operational tank, an Israeli tank, with a Trophy active protection system was projected to be

available in March of 2008. So, there was no APS system available last September as NBC asserted through quoting others and there is no APS system available today.

- On the second issue that NBC raised last September, relating to the process through which the Army awarded the Raytheon contract for its active protection system, the subcommittee asked the GAO to review the award of that contract. As of the end of March the GAO indicates that the selection of Raytheon as the active protection system developer followed the Future Combat Systems process for avoiding conflicts of interest. The GAO has yet to make its final report to the subcommittee.

- Another related issue needs to be clarified. While active protection is an important capability to pursue, and the Israeli Trophy system may be further along in development than other systems, even if we had active protection today for all those vehicles in Iraq that are capable of using it, it would only provide protection for less than five percent of the vehicles in Iraq and would be of no value in providing protection against the greatest threats our forces face every day -- improvised explosive devices and mines.

- Our subcommittee and the committee take our oversight responsibilities very seriously. When we find issues that require corrective action we act promptly. As a recent example, our actions following our force protection hearing on combat helmets last June resulted in a changed combat helmet acquisition policy and fielding process for one of the services, doubling the combat helmet protection afforded service men and women.

- This hearing is not about active protection systems, but it is about another important force protection issue, where the facts are again illusive. It would be more helpful for us to ascertain facts if all of the relevant parties to the issue would agree to discuss those facts.

John D. Grant

I want to thank the House Armed Service Committee for allowing me to speak today on this very important issue of body armor. There are very few pieces of equipment that are more important to the personal safety of a soldier. A soldier's very life depends on it!

My name is John Grant from Pearcy, Arkansas. I am a father of a soldier, a concerned citizen and a taxpayer!

My youngest son John "Tyler" Grant is a 21 year old Sergeant in the Arkansas Army National Guard. He has already served one tour of duty in Iraq and is awaiting orders for a subsequent redeployment with 39th BCT to Iraq for a second tour! Tyler is a 2nd year college student at Arkansas Tech University and is currently serving with the 1-153D HHC Infantry (11-B) as a team leader in a Recon Platoon.

Tyler joined the Guard in early 2003 at age 17 while a junior in high school. Three days after his graduation from high school he left for Fort Benning, GA. While there he completed his Basic Training and Infantry School. The very day he returned home from Fort Benning he was notified of his activation to be deployed to Iraq as a replacement. He served in Iraq for almost 6 months engaging in raids, patrols as a driver and gunner, house to house searches, FOB security and while there had several near misses with roadside bombs and engaged in several firefights!

Tyler has been awarded: a Combat Infantryman Badge, Army Commendation Medal, National Defense Service Medal, Army Service Ribbon, Armed Forces Reserve Medal with "M" Device, Global War on Terrorism Service Medal, Global War on Terrorism Expeditionary Medal and Sharpshooter Marksman Qualification Badge with Rifle Bar, with his character of service in Iraq described as "Honorable". He also currently serves as an Arkansas Army National Guard "Honor Guard" member, honoring fallen comrades.

I say all of this about my son, to preface why I am here today! Soldiers find themselves in a situation where the body armor they are wearing and are being forced to wear is inferior to what is readily commercially available! This has placed soldier's lives in extreme jeopardy and has resulted in numerous deaths of soldiers and marines, per the Pentagon's own report. As a parent I am outraged about this!

The fact that soldiers are dying needlessly, because the limitations of the current body armor, is a cause of great distress to me!

Also this sad fact is particularly alarming, it has been widely reported and admitted by Army Officials that National Guard and Army Reserve troops are both issued inferior and substandard equipment to what regular Army units receive. I find this very upsetting and offensive!

To make this point clear, when my Son came back from his first tour in Iraq, he had his Interceptor vest at home for some time. While inspecting the SAPI plates we discovered that they were marked "FRAGILE"! I can tell you that this did not instill much confidence in me that he was wearing a body armor system designed to stop bullets that was marked fragile! I believe that this is the very definition of the word ironic!

Now the current SAPI/ESAPI plates are marked "Handle with Care"! I assume while a soldier is conducting combat operations he or she must guard against damaging the plates or be in danger of losing all of its protective capabilities. Dropping a SAPI plate, it can easily chip or crack, losing its bullet stopping capability! This is not acceptable!

As a parent I find this is very disturbing and worrisome that my son, while in combat, may damage his SAPI plate without his knowledge and be exposed to lethal rifle fire while having little or no protection! This causes me to believe that wearing Interceptor is just like playing Russian roulette! When the trigger is pulled on a soldier, they will never know if the Interceptor vest will stop the bullet or not until it is too late!

It has been widely reported that snipers are now targeting our soldiers where they have no SAPI/ESAPI plate protection on their Interceptor vest. Apparently insurgent snipers understand our body armor limitations better than our own Army does. Case in point: As reported in the Washington Post last month, Staff Sergeant Christopher Kierman, 37, of Virginia Beach, VA was shot and killed in a spot on his side that was not protected by his SAPI/ESAPI plate in his Interceptor vest. I believe there is a serious problem with the limited coverage area in the Interceptor body armor design. It must be replaced with superior body armor with a much larger protective area, like Dragon Skin!

As a parent of a soldier I am livid that better body armor is and has been available during the entire Iraq and Afghanistan campaigns and not used. I find the fact that the Army has not used the best body armor and then subsequently banned the best from being used is particularly reprehensible and shocking!

The "Safety of Use Message" has had the effect of forcing (the fortunate few) soldiers who had been using Dragon Skin to take it off and therefore put their life in even more danger than it was by wearing Interceptor body armor. Then the Army forced these same soldiers to turn in their Dragon Skin body armor or face disciplinary charges or even a Court Martial for disobeying a direct order. When I found this out I became incensed and infuriated!

The Army has even gone to the extreme lengths to threaten Soldiers with the loss of their Service Group Life Insurance if killed in combat while wearing Dragon Skin! I cannot tell how deplorable and unpardonable this is, that the Army would bully soldiers with families with the loss of their death benefits!

If I or any other parent of a soldier wishes to buy superior body armor for their son or daughter use they should be allowed to wear it. The safety of our sons and daughters serving in harms way is our number one priority. They should not be prevented from wearing a better body armor that may very well preserve their life!

As a parent, I only want for my child and others children to have the best protective equipment possible and have the best chance to come home alive.

Currently our soldiers are NOT getting the "best possible body armor" per the Army's own talking points.

Congress must take action concerning this situation that soldiers find themselves in. Their safety is being compromised by the Army only allowing the use of Interceptor Body Armor, which is inferior in design to body armor that is commercially available.

This is while generals and their staff and other military units such as Special Forces in Iraq are allowed to use non-approved Dragon Skin with impunity. This is patently unfair and greatly upsetting! There should not be two sets of rules, one for generals and Special Forces and one for the soldiers on the ground!

The Army has lost all credibility when it comes to the testing of alternate body armors such as Dragon Skin. The relationship the Army has with military contractors has clouded their judgment to the point that they can no longer be trusted to fairly consider alternate body armors.

I believe the test the Army conducted on Dragon Skin was blatantly biased and was clearly designed to purposely make it fail. The Army's own expert on Dragon Skin, (Nevin Rupert), was ordered not to attend the test! Why would the Army not want its own expert to attend unless there was something that they wanted to hide? Also the test was conducted by Karl Masters, who admitted that his day job was "Program Manager" for Interceptor Body Armor. Isn't that like asking a Ford dealer if you should buy a Chevrolet?

Only Congress can fix this mess with respect to body armor! The Army is doing all they can to kill this issue! Congress must order a fair, independent and unbiased testing of Dragon Skin to prove to once and for all that it is truly better than Interceptor as I believe that it is!

Why do I believe that the Army would do this?

1. "MONEY" The Army has cast their lot on Interceptor Body Armor and does not want to spend the billions of dollars needed to replace the existing body armor system! Also the fact that other body armor systems are more costly, such as Dragon Skin, may have a lot to do with the Army not wanting to use it. Everything has a cost vs. benefit and the Army appears to have decided that a Soldier's life is not worth the cost of more expensive body armor, not even the new vest (Improved Outer Tactical Vest) the Army has designed. Production has been put off for 2 to 3 years while we have a war ongoing now!

2. "NOT INVENTED HERE PHILOSOPY" PEO Soldier has a culture of "Not Invented Here". They do not want a system of any type if they don't have a hand in developing it, even if it is better. Case in point: The Army's refusal to adopt the Trophy RPG defense system that is needed in Iraq today. They are choosing to develop a completely new system from the ground up that will not be ready for 3 to 5 years!

3. "The CORRUPT CULTURE IN PEO SOLDIER" The Army's PEO Soldier division has an incestuous relationship with the military contractors and uses that relationship for future jobs after retirement from the military! Case in point; Col. John Norwood was the military representative at the Army testing of Dragon Skin. Within a few months of the failing test of Dragon Skin, Col. John Norwood went to work as Vice-President for Armor Holdings, one the 4 or 5 major Interceptor Body Armor suppliers to the military! Am I the only person that can see what is going on? This is wrong on so many levels!

4. "LIABILITY AND CRIMINAL INTENT" The Army has painted itself into a corner with Interceptor! The Army would be in dire straights if it ever admitted that there is and has been better body armor systems available and did not use them. Also if it were proven that they purposely sabotaged the testing of Dragon Skin, could be considered a criminal act! The financial liability the Army would find themselves in would be massive from all of the unnecessary and preventable deaths of soldiers!

I believe that it is quite apparent that the Army cannot be trusted to tell the truth on this matter! All that anyone has to do is to look at how the Army lied about the Pat Tillman and Jessica Lynch situations. The Army continued lying until they were forced by Congress to tell the truth!

What do I want from the Committee today?

1. Congress must order a FAIR, UNBIASED and INDEPENDENT TEST of Dragon Skin Body Armor. The Army cannot be part of the test because they have lost all credibility on the testing of alternate body armors!

2. Demand that the Army to rescind the "SAFETY of USE MESSAGE" immediately, no longer banning the use of better body armor such as Dragon Skin!

3. Congress must direct the Army to not allow field commanders to disallow the use of Dragon Skin or any other better body armor system available now or in the future.

4. I believe that a "Congressional Investigation" into the facts concerning the Army testing of Dragon Skin is in order! If the investigation bears out what I believe to be true, that the Army purposely colluded to rig the testing of Dragon Skin to make it fail, each and every person responsible for this should be brought up on charges and be prosecuted to the fullest extend of the law! If proven, these people, (civilians and military) are directly responsible for the unnecessary loss of soldier's lives, just as if they had pulled the trigger and killed them themselves.

If you have never had a child serve in a war before, there is no way you can ever know what I and other parents go through! We pray constantly that God protects and keeps our soldier safe and that today is not the day he dies or is wounded! Everyday your son or daughter is in harms way is a day lived in fear! The fear of a call or car in front of your house telling you of your child's death! This is a horrific and horrendous feeling that you live with every single day! These feelings are only magnified when you find out that your child cannot wear the best body armor available because the Army has banned it! Putting me and other parents through even more worry than we already have makes me infuriated and incensed!

I have a question for the Army! How much money is a soldier's life worth? It appears to me that the Army places a price tag of about $2,500 on a soldier's life! Body armor like Dragon Skin can cost 2X as much as Interceptor. I guess that is just more than the Army thinks a soldier like my son's life is worth! To me my son's life is priceless and I would gladly pay for him to wear the best body armor available if he were just allowed to wear it!

The sad fact is soldiers die in war, but we have soldiers dying needlessly, because of they are not allowed to wear the best body armor available! This is a deplorable situation!

We are the richest and the most technologically advanced country in the world. We have the technology to better protect our soldiers and the Army chooses not to use it nor will they allow its use! I believe that this is criminal and has resulted in soldiers dying preventable deaths!

The Army should supply the best body armor available to all troops, but if they refuse, concerned parents like me will! I want my son and all soldiers to have the opportunity to wear the best body armor, Dragon Skin, even if the Army will not supply it! Again I will gladly buy my son better body armor if the Army will just allow him to wear it!

The Army may own the equipment, but we parents only loan them our children and expect them to be provided with, or allowed to use the best equipment available to help ensure their safe return! Our children deserve the "best" equipment possible, not something that will just make do! This is my only goal!

Thank you again for the opportunity to share my thoughts and concerns on this very important issue!

Sincerely,

John D. Grant

STATEMENT BY

MURRAY NEAL

FOUNDER AND CHIEF EXECUTIVE OFFICER

PINNACLE ARMOR

FULL COMMITTEE HEARING

DEPARTMENT OF DEFENSE BODY ARMOR PROGRAMS

JUNE 6, 2007

INTRODUCTION AND SOME REMARKS

Mr. Chairman and Honorable Members of this Committee,

Thank you for the opportunity to come before you today to try and give you the facts and information needed to make sure that as long as we have American men and women in harm's way in Iraq, Afghanistan or anywhere else, they will have the best possible body armor protection available.

As the most technologically advanced nation in the world, we have to ask ourselves "Why are we giving our troops essentially the same body armor that was developed a decade before 9/11?"

My name is Murray Neal and I am the founder and Chief Executive Officer of Pinnacle Armor, a company started in Fresno, California, 13 years ago in the agriculturally rich Central Valley.

In addition to body armor, we manufacture armors for buildings for ballistic and explosive blast threats used in many government facilities and military bases, and it's very likely you've been in buildings protected by our products. We also make armor for vehicles, vessels and aircraft among other types of armor systems.

But we all know why I'm here today. I make Dragon Skin® and despite what you may have heard from some diehard military traditionalists, it's the best body armor technology that can be made and we have the evidence to prove it.

There was a time when the Army valued our technologies and products so much that we were chosen to design, manufacture and install an armor shield to keep the Army Chinook helicopter fleet from being grounded in 1999, due to an unusual and compelling urgency contract. This resulted in the development of a record performance armor system at a never before established low weight in a short time line never before attained for armor development.

All that I ask for today from you and your staff is a FAIR, HONEST, and UN-BIASED HEARING.

I would be remiss if I didn't tell you of my deep disappointment and concern in coming here. As one of your top staff members, has put out dis-information

about our body armor. That information is included in the handout provided with all the other documentation in support of the facts that we will be presenting to you.

I am additionally concerned by the fact that I was declined a reasonable delay for 3rd party endorsements when provided less than two weeks notice, after I was notified on Tuesday May 22nd of a hearing on Thursday May 24th which was cancelled on Wednesday May 23rd. It would seem that there is a specific convenience for convening these two meetings in such short order that does not bode well for non-biased review.

Even more disheartening was finding out that subsequent to that, there was a sub-committee closed door hearing specific to this, obviously being single sided. Then there was the final decision not only to deny us the time to make appropriate arrangements for third party witnesses, but to selectively choose to not re-invite Mr. Nevin Rupert, who was invited to the original May 24th hearing. Mr. Nevin Rupert who has had over 33 years of Federal service, of which 24 years service was working with the Army in their Armor Materials Branch, was the Army's "Go-to-Specialist" for composite armors and specifically for 7 years, their selected ballistician for the Dragon Skin® technology transfer.

I am a straight-shooter and I am as forthright about that as I will be about every single thing which I tell you today.

Again, all that I ask for today from you and your staff is a FAIR, HONEST, and UN-BIASED HEARING.

Following last month's NBC expose on body armor, we saw a U.S. Army briefing at the Pentagon on May 21 in which the Dragon Skin® body armor system was ridiculed by a militia of military personnel. A battery of Army administrators chided our Dragon Skin® product and myself, because it had been featured in a series of NBC News reports that questioned whether the Army seriously was providing troops in combat the best body armor possible. The Army asked that NBC not describe the bullets and the velocities used in that test, yet General Brown himself for visual value to the Pentagon briefing specifically calls out one of the same projectiles.

You need to know that WE didn't go to NBC. They came to us after hearing about Dragon Skin® from operators in the field and learning that it had been in service for more than 10 years with outstanding results.

During the news briefing, the Army disgustingly took great liberties in deliberately stating innuendo with the focus on spreading doubt to those viewing when saying, it could not comment on how many of our brave men and women have been killed wearing Dragon Skin® even though had.

For the record, there has NEVER been a death or serious injury from anyone while wearing the Dragon Skin® body armor. And that is from those who have been shot as many as 16 times without failure, up to and including, substantial IED fragmentation resistance, up to and including, 20mm fragmentation without failure, where the soldiers and contractors are still alive and well today, solely due to the additional uninterrupted coverage and battlefield proven performance capabilities of the Dragon Skin® body armor.

We have many testimonials where the wearer did not even bruise from being shot. This is evidenced in the reduced trauma by as much as 60% below the typical plate systems today.

Pinnacle Armor is a well-respected company that has produced a wide array of protective products for the U.S. Government, Military, and private agencies since 1993, from items that protect sensitive government buildings to body armor systems used by special operations forces around the globe. Some of our products are classified, performing in the shadows of the special operations world. I am not allowed to tell you exactly which special operations groups use Dragon Skin® and/or Pinnacle products but NBC has revealed that special operatives of the Central Intelligence Agency have tested, approved, and now wear Dragon Skin® body armor. And I can tell you that those ballistic performance requirements far out weigh those of the Army.

The U.S. Government routinely comes to us to solve their protective problems – and we always do. The Army has told you that Dragon Skin® failed its test miserably and I am here to tell you it did not fail. Every agency we work for is more than satisfied with Dragon Skin® and its proven performance in combat situations. IN FACT, the Army is the only entity that has said our armor fails against the threats that it is designed to defeat.

That is specifically why we are here today. We would not be here if it was not for the capability of the Dragon Skin® body armor's ability to stand on its own, through all of the witnessed and video taped shoots by Federal, state, SWAT and local law enforcement, as well as the selected military special operations units that have shot it themselves.

If the Army is going to slander me, and deride our products, and continue to put the lives of our men and women at greater risk than necessary, I have no choice but to defend my company, my employees, my vendors and the many customers who rely upon our protective products. Of Pinnacle Armor's 23 domestic and international patents, 13 are related directly to the Dragon Skin®, with some of them being classified by the U.S. Government.

It's a sad commentary that the Army's version of the truth doesn't always jive with the facts.

A good case in point would be when General Cocolo during the May 21st briefing for the media, said: "Sir. Lets take the gloves off on this. Let's go ahead and counter". He said at the briefing that the Army had not ever revealed information on the May 2006 FAT (First Article Test). However, you will find in the documents provided to you that as far back as September 12, 2006, just 4 months after the termination of the uncompleted FAT test, the Army was sending out an "information paper" to parents trying to raise money, covering the exact issues that they have provided in their news briefing. It was not due to the "tipping the balance in favor of operational security" as General Cocolo said. They had already been disseminating the information.

Brigadier General Mark Brown, in charge of Program Executive Office Soldier, quickly recites the Army's mantra, "...our soldiers and Marines today have the best body armor in the world - bar none."

However, General Brown conveniently failed to tell you and his media audience that in several highly publicized incidents, the Army and Marines recalled FAT tested and post production approved body armor for failing to meet minimum standards. Over the last four years, more than 120,000 "approved" armor systems have been recalled, delayed, shelved and/or sent into combat after the Army issued troubling waivers. And more significantly, there never was a SOUM (Safety of Use Message) issued during those incidents of failure. That means some troops might have been sent into combat wearing body armor not completely up to standards, hardly what I'd call meeting the

mission to send our troops into battle wearing "the best body armor in the world - bar none."

I have never challenged the worth of the Army's Interceptor system. It is good and it has saved many American lives over the years. However, NBC came to Pinnacle Armor because the producers of the show had heard there might be a better system available that the government was not looking at, or avoiding. That's Dragon Skin®.

General Brown said he is always looking for better body armor, but I question if that is true.

Despite all the testing of Dragon Skin by Federal, state, local, DoD and even the Army's own Research Lab, General Brown used a single testing day in the NBC story for all his allegations regarding the Army FAT test a year ago. I don't agree with his assessment, nor with the testing procedures and protocols that went on that particular day, but all of our attempts to work with the Army to have the vests retested in a public forum have failed to move the Army from its position.

General Brown said it's personal for him and the others who decide which body armor to use.

Well, Honorable Members, it's very personal for me when I read that in a secret study of 401 Marine deaths in Iraq during 2004-2005, perhaps 80% of them might have survived if they'd had more coverage than the Interceptor offers. I am saddened that perhaps if they'd been wearing Dragon Skin®, hundreds of Marine wives and mothers wouldn't be widows or without loved ones, and sons and daughters would not be without their parents.

In other words, 80% of 401 dead Marines equals 320 of our nation's finest who should be alive today and that is the MAJOR reason I am here today to make sure you hear AND know the truth. This is only a part of that. Hold onto the 80% number, then add all of the Marines, Army, Air Force, Contractors and Media Personnel that have died to date, and then look at that now grievously staggering 80% number, it would seem that those coveting the current program have mislead you, the people of the United States and more grievously the men and women who unselfishly serve our country to protect the rights and liberties for all Americans. The Army created this issue of the lack of better body armor protection for our soldiers.

Let me tell you that I was absolutely baffled when General Brown showed you and the media, video and x-rays of Dragon Skin® that appeared to have been seriously degraded by Army testing.

Not only do our vendors guarantee our adhesives to withstand 250 degrees above and 60 degrees below zero, we've never seen such catastrophic failures in all the years we've been testing Dragon Skin®. We have decade-old vests that still look new despite beatings and hundreds of rounds of bullets fired into them. I can only assume that some of those x-rays depict manipulated armor prior to being photographed, because it is impossible, and anyone with an understanding of physics will tell you, it is impossible for the round disks in the vest to fall SIDEWAYS and stack up on each other like casino chips. The last I heard, gravity falls downward, not to the right or left.

A secondary validation of this would be to view the test shots on the video. There you will NOT see any bulges of discs turned sideways, just the flat layout of the discs with their outlines showing through the textile carrier material. It is nearly impossible to turn a 2" diameter disc on its side in such a tightly compressed, heavily-adhesive-laminated area, much less multiple rows of them. And it would most certainly show up on the video as bulges over 2" thicker in those regions. That just did not happen.

I'm sure some of you are scratching your head and asking yourself, "Why would the Army lie and why would they be telling us stories that aren't true about Dragon Skin®.

Well, Honorable Members of Congress, it is not hard to see the full picture when you notice in the document handout that the Army has sent out at least 3 different briefing papers. I imagine that it must be good to have test data that fits each end recipient, instead of one set for everyone. In that you will clearly see on the motor oil post x-ray bullet cores present where they use that x-ray to falsely claim a complete penetration, the same is true for the diesel fuel exposure and the impact drop post x-ray.

I was also disappointed that General Brown didn't explain to you or the media why the Interceptor vest tested by NBC failed after a handful of bullets were fired into it at room (Ambient) temperature. While he says body armor must pass high and low temperature tests, the Interceptor vest tested by NBC failed at room temperature while Dragon Skin® continued to perform. It performed

better than the latest and greatest designed plate for the Interceptor. Despite Army claims that the ESAPI plates used by NBC were fake, which they were not, anyone questioning that can see that the threat level color green which denotes level 4.

And by the way, we have NEVER had a problem with our bullet-defeating discs slipping after being soaked in diesel oil, or at 60° below zero where the armor is as hard as a brick, or at higher elevated temperatures or temperature variations, and there are thousands of our Dragon Skin® vests right now in theatre, many of which have been worn every day throughout numerous deployments, and for several years in multiple cases without failures.

And may I ask you as Members of Congress, has the Army ever shown you the test records for the Interceptor or allowed you to see footage of Interceptor tests? They have a pronounced aversion to that, as well as with an open, but well regulated, independent side-by-side test that meets their protocol.

Let's allow some non-Army, highly acclaimed Government or civilian ballisticians do the testing.

I must also take strong issue with General Brown's egregious assertions that Dragon Skin® weighs 20 pounds more than Interceptor does. The Army ORDERED an XL vest to see how many discs we could put into it. It was a full torso wrap with added side and upper disc coverage, one that we do not manufacture due to the weight and possible restriction of full arm motion, but we did it per the specific request of Brigadier General Moran. Then the Army holds it up against a smaller Interceptor, with substantially less rifle defeating coverage? COME ON! Our vests are proven to be comparable in a-completed-as-worn system weight and vastly more protective than anything the Army's using and General Brown knows it. It would not matter if it is our system or any other system, if you add more coverage you do add weight. However, adding flexible uninterrupted coverage is always better than rigid plate coverage with gaps, which further restricts movement.

I do agree on one point with General Brown, that the Army halted the testing in May 2006 before it was completed. But what disturbs me is that the Army showed all these x-rays of Dragon Skin® that supposedly allowed bullets to go right through, what they called FULL PENETRATIONS that could be called "kills".

That is seriously misleading. Except for the 8 rounds fired through the textile of the vest where there are no protective discs, to gather so-called data points, and that is never held against you as a failure.

Yes, I was at the test, and yes I watched the pre-x-ray session, but was only allowed to view two sets of post x-rays.

As to why there are time lapses in the video tape shown by the Army to you and the media; You will have to ask the Army. They ran cameras continuously throughout the testing. I'm sorry they didn't show the tape of the testers arguing over how to test flexible body armor. The new technology of the flexible rifle defeating Dragon Skin® body armor seems to have the Army and its testing crew confused.

No one else has a problem with this high-tech concept, even the National Institute of Justice figured out how it works, I'm sorry they just don't understand it. They still have a ceramic plate mentality.

Let me also add that I was personally perplexed at the General's claim that the testing video in Germany shows the technician holding up the armor with one hand and then saying to you the audience, "If you pick that up, I defy you to say that that lab worker could have done that", Once again comparing apples to oranges, another quick innuendo and doubt setter, as it is clearly evident that the tests were conducted on 10"x12" configured armor samples. Why the meaningless and totally inaccurate dig at Dragon Skin®?

Some of the dads who have come to me seeking Dragon Skin® for their sons and daughters in harm's way believe there is some sort of conspiracy going on to keep better body armor off the market.

I don't want to believe that, but H.P. White Labs in Maryland had an explosion and fire shortly after NBC sought to get some Army test data. I do find that interesting.

General Brown has ALSO said that Pinnacle Armor has never responded to a full and open competition. That's not true. You will also find evidence of submissions that we have made in the documents provided. What he does fail to disclose to you is that in ALL cases we have been rejected as we did not want to compete with anything but a flexible panel, as they would not change the

requirements to accept an alternative armor solution to a rigid plate requirement and rejected us every time. That does not seem to be like an open and objective way to get the best armor offerings for competitive selection.

We have actually received and submitted several invitations to compete, but we were told that we would ONLY be accepted if we bring single plate body armor technology, NOT our flexible vests technology. I refuse to step back in time for the Army and fail to provide our men and women the best body armor America has to offer.

It's not that we won't compete; it's that the Army won't let us compete with our new technology against their old technology.

If the Army wants to test Dragon Skin® against any of its body armor systems or any other in the world, we're ready. Let's just make sure they're seeking the best overall protection and maneuverability for our troops, not just more of the same old plates.

During the Pentagon presentation, General Brown said, and I quote,
"The design (of Dragon Skin®) is sensitive to extreme temperatures and failed to maintain ballistic integrity at temperatures below ambient in Operation Iraqi Freedom."

He said the failure mode caused the disc to delaminate and accumulate in the lower portion of the armored vest and expose the vital organs. He also said that of the thirteen first or second shots, Dragon Skin® failed four of eight initial subtests with the threat baseline, which is 7.62 by 63 millimeter armor-piercing AP M2 ammunition.

That's just not true. Again, this is only selective information mixed with misrepresentation and speculation on his part. This too could be due to the information that he was provided. However, a man in his position should verify that both sides of the coin are validated before only subscribing to one iteration of the data as presented.

What he has failed to tell you is that 88 shots were fired, not 48 as claimed. 80 of those shots were as per the shot requirements, 5 due to some shots being too low or high in velocities and thus requiring additional shots into the target, and 3 that were fired on single discs set aside and shot for R&D purposes. Hardly a failure of FAT test protocols and procedures. By the way, of the 3 individual

disc shots, one was in the center with a complete defeat, one was half way from the center to the edge with a complete defeat, and the third as approximately .375" from the edge that had a penetration, again they were STRICTLY for R&D purposes, not for the FAT protocol and procedures.

So in addition to not giving you all of the data he then tries to confuse you by overlap joint densities, etc. That issue is moot and the test data to prove it is also included in the document package. They bring it up as a way to once again obfuscate the issue. I desire to present in an executive session classified information that details this arrangement, subsequent to you members of congress asking them to explain the construction and how it works. That will prove to you that they truly do not know how a flexible system works.

General Brown has also told his audiences, and I quote, "The basis for issuing that Safety of Use Message was a series of limited developmental tests leading up to the Safety of Use Message, and I will tell you what they were.

He went on to say, "Dragon Skin failed ballistic testing in May 04 at H.P. White Laboratories. We encouraged Dragon Skin to go back to the drawing board and try to solve their problems because we're very interested in these types of armors, we're very interested in these flexible armors. If we can get the problems shaken out of them, we think they offer great potential. That potential has not yet been realized."

That was a test conducted at the request of Natick Soldier Systems to quantify the lightest configuration that we could possibly make at that time utilizing a ceramic technology that we will not use to date, due to it not being developed enough for our application. The data for that is also enclosed in your documents. Once again, this requested R&D submission by Dr. James Zheng was not a developmental design of our production armor, but rather a desire to see how an extremely low weight panel below the current SAPI plate would do. This was based upon the Dragon Skins high performance capabilities, and one that would not constitute a reason for the Army to use retroactively use as an excuse for the SOUM.

He also claimed, and I'm still quoting, "Later, from July to December of `05, Army Test and Evaluation Command conducted another developmental test; again the results were inconclusive. And then, in February of `06, Dragon Skin failed an Air Force ballistic test."

The 2005 test that the Army claims as theirs was actually a test for the Marine Corps which was conducted by the Army, in which that data is also in your documents package. In that you will find that it is much more than conclusive and even shows in their own report where they deviated from the protocol and procedures by shooting an "in-conjunction armor" without the required OTV backing. But as you will also note, even without the OTV backing, it was equal to and in over 80% of the time, better ballistics than the current system.

As for the Air Force test not passing, the Army has once again given you incorrect information and the true facts that are also included in the document package, along with the press release that the Air Force and JAG approved for release covering that issue. Let me explain: That was a level 3 system in which level 4 rounds were shot into it, rounds that should not have been defeated at all. And once again, as you will see, even the Dragon Skin® level 3 system defeated 55% of the level 4 rounds. This is a test, which would hardly be considered a failure.

Honorable Members of Congress, let me read what the Air Force really had to say in that release. QUOTE: "The Air Force Office of Special Investigations' (AFOSI) February 2006 tests of the Dragon Skin® level III body armor at Aberdeen Test Center did not fail any written contract specifications with the Air Force. AFOSI, because it conducts counter-threat operations in hostile environments on a daily basis, has a requirement for a high level of ballistic performance, with a greater area of coverage in a lighter weight system, which also allows for better mobility to execute specific mission needs.

"Pinnacle is meeting that requirement. The decision to return the vests to Pinnacle following testing was a mutual decision to allow Pinnacle to address a manufacturing issue, but that issue did not affect the vests' performance during testing." Why did the Army attempt to mislead you on this?

We did not ask for this war, did not seek it out, and did nothing to trigger such an over-reaction by the Army or the Pentagon other than to provide NBC with vests to test during their story. But I don't believe any company has to just sit back and take this kind of treatment from the Army, nor any agency of the U.S. Government.

We have long provided our warriors with the best protection available. We're proud of the work we do here and anytime the Army or the Marines or

Congress wants to have a real independent and fair test of body armor ... well, bring it on.

I would like to close with a couple of points after all I have shared with you.

I have always self-funded all my R & D. That too is evident in the fact the technology was in the patent pending phase before we brought it to Natick and the Army Research Laboratories.

In 2003, in the spirit of teamwork and cooperation, I agreed to enter into a Preliminary Technology Transfer Program with the Army Research Laboratory and our Dragon Skin® as part of a Small Business Innovation Research project. That was designed to assist the Army in the understanding of how a flexible armor worked.

There is more information in the Army Research Lab Ballistics Library where you'll find 102 pages of documentation published in June of 2003 under ARL-CR-527.

Why does the Army attack Dragon Skin® when the Army is still buying Dragon Skin® behind the scenes through non-normal channels for its top brass? And what about the troops on the streets of Fallujah and Rimadi? Don't they also deserve the best body armor?

Dragon Skin® is truly a PROVEN commodity in combat! ALL, and I repeat, ALL of our military men and women deserve to be wearing it. It is comparable in cost and weight, but much more effective against multiple high-powered rounds and substantially so against IED threats. Dragon Skin® does not break when it hits the ground or is harshly handled in a combat environment like the ceramic plates do on the Interceptor.

In addition to my testimony, I have also provided your staff with background documentation on what I have told you today. This includes the letter response from one of your staffers that raised the concerns I mentioned at the start of my testimony, a document that shows how the Army has flip-flopped on how it feels about, and has dealt with Dragon Skin®, the Certificate of Conformance from our adhesive laminator vendor attesting to the standards that meet and exceed the temperature levels the Army has claimed failed in the testing of Dragon Skin®, a comprehensive review of Dragon Skin® by the respected

DefenseWatch on Military.com, and a detailed point-by-point response from me to the Army's briefing to the media on May 21st.

I thank you for your time, your invitation to lay out the facts and the true story of Dragon Skin®, and for giving me the opportunity to share with you my passion for protecting the lives of the men and women in service to our nation, whether in an office building here in Washington or other parts of America, or patrolling in the streets of Iraq and Afghanistan.

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STATEMENT OF

COLONEL KEVIN S. NOONAN, U.S. ARMY

PROGRAM EXECUTIVE OFFICER

SPECIAL OPERATIONS FORCES WARRIOR PROGRAMS

UNITED STATES SPECIAL OPERATIONS COMMAND

BEFORE THE HOUSE ARMED SERVICES COMMITTEE

DEFENSE BODY ARMOR PROGRAMS

JUNE 6, 2007

FOR OFFICIAL USE ONLY
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STATEMENT OF
COLONEL KEVIN S. NOONAN, U.S. ARMY
PROGRAM EXECUTIVE OFFICER
SPECIAL OPERATIONS FORCES WARRIOR PROGRAMS
UNITED STATES SPECIAL OPERATIONS COMMAND

Mr. Chairman and distinguished members of the Committee, it's an honor to appear before this Committee today to report on the United States Special Operations Command's (USSOCOM) Body Armor requirement and material solution.

I am COL Kevin Noonan, the USSOCOM Program Executive Officer for Special Operations Forces (SOF) Warrior Programs within the Command's Acquisition and Logistics Center. I am in charge of acquiring SOF-peculiar solutions for a variety of items including weapons, ammunition, ground mobility, visual augmentation systems, and personal survivability equipment that are not provided by Service-common solutions. To achieve this, we utilize a process that directly teams with our component users from the Army, Navy, Air Force, and Marine Corps Special Operations Commands. Our goal is to maximize the use of Service-common solutions, and we are actively engaged with Service Program Offices to test equipment that can meet SOF requirements.

The USSOCOM ballistic protection solution is known as the SOF Personnel Equipment Advanced Requirements (SPEAR) body armor system. The USSOCOM requirement is to provide a level of protection to defeat 2–strike Armor Piercing Munitions. We do this by rapidly fielding successive lightweight and advanced SOF-unique components of clothing and individual equipment

while integrating them into a tailorable system.

This tailorable system is called the SPEAR Body Armor/Load Carriage System, or BALCS. It is a family of integrated armor and load carriage systems which provides SOF operators with the modularity required to meet the various mission profiles in all environmental extremes. Specifically, USSOCOM requires the ability for the individual operator to tailor his protection and load to meet various mission profiles while maintaining the necessary agility, mobility, and range of motion required to meet SOF mission standards.

The first material solution to meet SPEAR requirements was realized in Fiscal Year 1998 through a Full and Open Competition, involving seven different vendors. Based on the technology at the time, our initial plate fielded in 1999 was capable of stopping only one strike of Armor Piercing Munitions due to weight constraints. Through Spiral Development, SOF was able to field an armor plate meeting the two strike requirement in 2002. We have been fielding this plate ever since. In addition to the increased ballistic capability, several other BALCS sub-systems have been modified to better support current operations in spiral development through feedback from SOF operators.

The SPEAR Body Armor plates are tested using a standard test protocol. In both first article and lot testing, plates are shot with Armor Piercing Munitions, 4 inches apart, 2 shots per plate, in an "around the clock" pattern. The first shot is 1 inch from the edge until we get around the plate once, then we probe other areas of the plate.

This protocol is used during first article testing of SPEAR plates exposed

to ambient, hot and cold temperatures; salt water; chlorine water; and petroleum. Lot testing consists of only Ambient testing using the shot protocol. We have all the Lot testing results from 2002 which substantiate the performance of our plates through the years.

The approved standard USSOCOM SPEAR body armor system includes the Releasable Body Armor Vest (RBAV) made by Eagle Industries in Missouri, GEN II Tactical Plates and Modular Supplemental Armor Protection (MSAP) made by Ceredyne in California, and Soft Ballistic Fillers made by Safariland in California. In accordance with the USSOCOM requirement for modularity and tailorability, the SPEAR body armor system employs a variety of pockets, pouches, harnesses, and an additional plate carrier o meet various SOF mission scenarios.

USSOCOM uses the SPEAR Body Armor system because it has been successfully tested and has been proven to meet the 2-strike Armor Piercing Munitions requirement since 2002. Additionally, the SPEAR Body Armor system has maintained its operational suitability and effectiveness as demonstrated in robust independent operational evaluation and combat operations.

The SPEAR Body Armor system has proven an effective ballistic system in SOF combat operations throughout the world since 2002. There are many documented cases in which the SPEAR body armor system has saved the lives of SOF operators in combat. These results have produced an enormous confidence in SOF operators with regard to their ballistic protection.

With the assistance of the National Assessment Group and the Army

Research Lab, USSOCOM has initiated a threat evaluation of current, emerging, and future battlefield threats to the SOF operators to ensure we are vigilant about their protection. We will continue to test our SPEAR armor system against prioritized battlefield threats. USSOCOM continually searches for new technologies that support our SOF missions. We recognize that in order to meet the needs of our SOF warrior, we must continue to work to reduce the weight of our body armor while increasing ballistic protection. We have challenged industry to meet this requirement in our current solicitation for the SPEAR "Family of Ballistic Plates," which was released this month. In response to industry requests, we have extended the response date of the solicitation 60 days to August 7th to allow all vendors to provide the robust test data we have required of them. We expect to award this contract no later than the second quarter of Fiscal Year 2008.

Mr. Chairman, I want to thank you and the members of the House Armed Services Committee for your continued support of our SOF soldiers, sailors, airmen, marines, and our dedicated USSOCOM civilians. In particular, I would like to thank you for your support of the SPEAR program, and request your continued support as it has proven to save the lives of SOF operators over the years.

DEPARTMENT OF THE AIR FORCE

PRESENTATION TO THE COMMITTEE ON ARMED SERVICES
UNITED STATES HOUSE OF REPRESENTATIVES

SUBJECT: INDIVIDUAL BODY ARMOR

STATEMENT OF: MR. DOUGLAS D. THOMAS
EXECUTIVE DIRECTOR
AIR FORCE OFFICE OF SPECIAL INVESTIGATIONS

6 JUNE 2007

NOT FOR PUBLICATION UNTIL RELEASED
BY THE COMMITTEE ON ARMED SERVICES
UNITED STATES HOUSE OF REPRESENTATIVES

Introduction

Distinguished members of the committee, I want to thank you for the opportunity to appear before you to present information on the current Air Force Office of Special Investigations (AFOSI) Individual Body Armor (IBA), its capabilities, how we chose this particular IBA and the chain of events which lead to AFOSI's selection of another IBA after briefly fielding Pinnacle Dragon Skin Armor. On behalf of our commander, Brigadier General Dana A. Simmons and the men and women of the AFOSI, thank you for your continued, strong support.

First, let me begin by stating AFOSI provides significant support to the ongoing conflict in Iraq and Afghanistan. We currently have 181 special agents deployed in support of Operations IRAQI FREEDOM (OIF) and ENDURING FREEDOM (OEF). Since just the beginning of this fiscal year, the 91 special agents deployed in direct support of Air Force operations have conducted 832 combat sorties, identified 2737 threats, prepared 28 Target Packages and have been responsible for 341 terrorists neutralized. The remaining special agents supporting joint operations or performing "in-lieu of" taskings have made a similar impact.

Because of our extensive "outside the wire" mission, AFOSI continues to field the most advanced protective gear and equipment for our special agents, specifically in the areas of combat helmets, light armored vehicles, and individual body armor.

Type of IBA Currently Used

Since October, 2006, AFOSI agents are issued the Paraclete Rapid Release Vest (RAV). This IBA is provided to all our special agents deploying in support of OEF or OIF prior to attending our six week Advance Deployment Operations Course that prepares them for the turbulence and violence they may experience while deployed. Prior to the Paraclete RAV IBA selection, AFOSI reviewed 16 different IBA models for level of threat protection, mobility, and comfort before choosing this model for further consideration. At the time of selection, a SOCOM Tier 1 team was using this model, as were AFSOC Special Tactics Squadrons (STS). AFOSI's forward deployed staff members also requested HQ AFOSI review this IBA after gathering data within the OIF/OEF AOR. A three day examination period, sponsored by HQ AFOSI for recently redeployed AFOSI personnel and Antiterrorism Specialty Team and Contingency Response Group special agents, provided universal positive feedback on the Paraclete RAVs comfort, mobility, and protection as compared to the standard Interceptor IBA used by the bulk of deployed US forces.

Effectiveness

Fortunately, no agents have received direct or indirect fire to the torso area since Paraclete RAV IBA has become standard issue. Additionally, all redeploying agents asked have provided positive feedback on the Paraclete RAV IBA. The Paraclete RAV IBA utilizes front and rear Enhanced Small Arm Protective Inserts (ESAPI) as well as side torso side strike plates. These side plates protect against a single round of 5.56 (M-4) or 7.62 x 39 (AK-47) assault rife threat. It also allows the wearer to mount a soft ballistic collar, yoke, shoulder, and groin

protection. A final benefit is an emergency rip-away release feature, which provides the wearer the ability to quickly remove the vest in case of vehicle immersion into water, escaping a damaged vehicle, or to quickly remove to treat combat wounds.

Pinnacle Dragon Skin Body Armor

AFOSI's first interaction with Pinnacle Dragon Skin Body Armor occurred while researching flexible armor to hardened indigenous vehicles. This led to AFOSI reviewing Pinnacle Dragon Skin Body Armor to meet the needs of our deployed special agents. Initial information obtained from Mr. Nevin Rupert, US Army Research Laboratory, was positive and AFOSI pressed ahead with urgency to acquire this promising IBA. However, On 26 Jan 06, AFOSI was notified by USAF Battle Lab personnel of test failures of Pinnacle Dragon Skin Body Armor at the Air Force Research Lab (AFRL). Because of this notification, and to confirm Pinnacle verbal claims of their SOV 2000 Level III "Plus" Dragon Skin Armor meeting key Level IV threats, AFOSI requested the Aberdeen Test Center fire the following Level IV rounds into the vests on 16 Feb 06.

1.) 7.62 x 54mm 147 GR, (LPS – light-ball ammo w/mild steel core) - PENETRATION despite Pinnacle Armor verbal assurance it would stop this threat.

2.) 7.62 x 39mm 120 GR, (BZ – armor piercing incendiary (API)) - PENETRATION despite Pinnacle Armor verbal assurance it would stop this threat.

3.) 7.62 x 39 mm 122 GR, (PS - steel case mild steel core) – PASSED as advertised on Pinnacle Armor website

According to the contract specifications, the Pinnacle Armor SOV 2000 Level III "Plus" Dragon Skin vests did not fail testing on written capabilities and was certified per contract specifications. However, it did fail the verbally stated capabilities discussed between Pinnacle Armor and HQ AFOSI personnel and on 17 Feb 06. AFOSI immediately issued a "Stop-Use" order on Pinnacle Dragon Skin Armor and directed all vests currently in use be sent back to HQ AFOSI. AFOSI personnel were directed to use an alternate IBA until a suitable substitute could be fielded.

On 11 May 06, AFOSI received verification from the Nation Law Enforcement and Corrections Technology Center that Pinnacle Armor had no body armor tested/certified to NIJ Level III or Level IV standards. Of note, is all Pinnacle Dragon Skin SOV 2000 armor received by AFOSI were clearly and falsely marked NIJ Level III. On 13 Jun 06, AFOSI directed HP White Labs to perform NIJ Level III ballistic testing on AFOSI procured Pinnacle Dragon Skin SOV 2000 Armor. This testing was performed under supervision of a HQ AFOSI special agent and resulted in the Dragon Skin Armor failing. The tested vest experienced one penetration to the front panel after six shots and two penetrations to the rear panel after six shots. Additionally, the vest failed to stop Level III threats to the side panels, disproving the "full torso wrap protection" claim made by Pinnacle Armor.

During the month of July 06, the AF initiated action to stop further contractual payments to Pinnacle Armor because of these documented failures. In April 07, AFMCLO/JAF began preparation of proposed debarment package on Pinnacle Armor. That package is in final review and is expected to be filed with SAF/GCR by the week ending 8 Jun 07. The AUSA and AFOSI had no objections to the package. In addition, Pinnacle Armor formally appealed the Air Force Legal Operations Agency (AFLOA/JACQ) Termination for Cause determination to the Armed Services Board of Contract Appeals (ASBCA).

Also ongoing is a Joint DCIS/AFOSI criminal investigation of Pinnacle Armor for wrongly indicating via labels affixed to the AFOSI purchased Pinnacle Dragon Skin Body Armor the vests were NIJ Level III compliant when in fact they had not been certified to that standard

Summary

Brigadier General Simmons is committed to providing the men and women of AFOSI with the most advanced protective gear and equipment available. We want to especially thank you for your continued support that allows us to obtain this leading edge equipment so we can more safely perform our mission which is to "Identify, exploit and neutralize criminal, terrorist and intelligence threats to the U.S. Air Force, Department of Defense and U.S. Government." Members of the committee, thank you from the men and women of AFOSI for your interest in our safety.

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THE HOUSE ARMED SERVICES COMMITTEE

STATEMENT

OF

COLONEL EDWARD J. SMITH
PRODUCT GROUP DIRECTOR
COMBAT EQUIPMENT AND SUPPORT SYSTEMS
MARINE CORPS SYSTEMS COMMAND

BEFORE THE

HOUSE ARMED SERVICES COMMITTEE

ON

MARINE CORPS BODY ARMOR PROTECTION EFFORTS

6 JUNE 2007

NOT FOR PUBLICATION UNTIL RELEASED BY THE
HOUSE ARMED SERVICES COMMITTEE

Colonel Edward J. Smith
United States Marine Corps

Colonel Ed Smith is currently serving as the Product Group Director for Combat Equipment and Support Systems at Marine Corps Systems Command in Quantico, VA.

He was commissioned upon graduating from Shippensburg University in 1982. Upon completion of the Infantry Officers Course in 1983, Lieutenant Smith was assigned to 3d Battalion, 8th Marines, Camp Lejeune, NC where he served as a Weapons Platoon Commander, Company Executive Officer and a Company Commander, deploying to the Mediterranean Sea twice. In January 1986, he attended the Logistics Officers Course and was transferred to the MCAS, New River, NC where he served as the Station Assistant Logistics Officer. In May 1988, Captain Smith was assigned to 3d Battalion, 7th Marines, 29 Palms, CA where he served as the S-4 during a unit deployment to Okinawa and Operation Desert Storm.

In June 1991, Captain Smith was transferred to the US Army, Transportation Officers Advance Course, Ft Eustis, VA, as a student, graduating with honors. Following graduation, he went to Marine Corps Systems Command, for duty with the Program Manger for Light Armored Vehicles in Detroit, MI as the Logistics Support Officer, a Project Officer and the Assistant Program Manager for Operations until May 1995. From 1995 to 1999, Major Smith served as the S-4 and Executive Officer for the 2d SRIG and then the Executive Officer for H&S Battalion, II MEF. In June 1999, he was transferred to the US Army Command & General Staff College, Ft Leavenworth, KS, as a student, where he also earned a Master's Degree in Procurement and Acquisitions Management.

In July 2000, Lieutenant Colonel Smith returned to Marine Corps Systems Command in Quantico, VA and was assigned as the Operations Officer for Systems Engineering and Integration for C4I systems. In June 2002, he was reassigned as the Team Leader and subsequently the Program Manager for the Expeditionary Fire Support System. He was transferred to the 3D MLG during October 2004 and served as the G-4 and Inspector. From May 2005 to January 2006, Colonel Smith served as the Officer in Charge, MARCENT Coordination Element in Kuwait in support of OIF/OEF. Returning to the MLG in February 2006, he was reassigned as the Chief of Staff. Col Smith returned to Marine Corps Systems Command in July 2006.

Colonel Smith's personal awards include the Legion of Merit with gold star, the Meritorious Service Medal with gold star, the Navy and Marine Corps Commendation Medal with gold star and combat "V" and the Combat Action Ribbon. He is a Life Member of the Marine Corps League, Landis-McCleaf Detachment and is married to the former Robin Jones of Oakland, California. They have one son, Edward III.

Chairman Skelton, Congressman Hunter, and distinguished Members of the Committee, I am honored to appear before you today and for this opportunity to discuss Marine Corps body armor. But first, on behalf of all Marines and their families, I want to thank you for your continued support to meet the needs of our Marines as they fight the Long War on Terror.

Force protection is the top priority for the Marine Corps. We are committed to providing body armor and other personal protection equipment to save Marines' lives, reduce Marine casualties, and limit the severity of our casualties. Our warfighters have the best body armor available. According to the Armed Forces Institute of Pathology, there have been no deaths attributed to the penetration of the Enhanced-Small Arms Protective Inserts or E-SAPI plates by a threat round that it is designed to defeat. Our body armor works! Our mission is to ensure that one-hundred percent of our body armor requirements are quickly met with the best systems available; and, to my knowledge, there are no available commercial body armor protection products more capable of saving our warfighters' lives and reducing injuries in combat than the personal protection body armor equipment I am going to describe for you today.

It is important that we understand the environment in which our fielded systems will operate. We are in a constantly changing environment that requires us to be agile and flexible to combating an ever-changing threat.

The Interceptor Body Armor is the foundation for our modular ballistic body armoring system. It consists of an Outer Tactical Vest (OTV) or Modular Tactical Vest (MTV), soft body armor, groin protector, throat protector and Enhanced Small Arms Protective Inserts (E-SAPI) and Side-ESAPI plates. All of our protection equipment is certified through rigorous ballistic testing that must withstand fluctuating temperatures and extreme environmental conditions. The Army and the Marine Corps use the same test protocols. In addition to testing by the

government, testing is also conducted at an independent ballistic laboratory. I am confident in the unbiased results.

We take a rapid development and fielding approach by initiating innovative modifications to our equipment to improve its protection for the Marine that meets evolving threats and future challenges. After a system is fielded, we continue to look for ways to further improve those systems. We collaborate with industry both here and abroad for design, development, and production assistance; with our sister Services to identify areas for joint activities and testing; and with the Office of Naval Research and the joint Science & Technology community on current and future technologies. Additionally, we turn to the medical community for their expertise to evaluate and make our systems the safest they can be for our warfighters.

The wartime environment constantly changes, and no one is better suited to determine what would be most effective in any given situation than the warfighter. With our modular ballistic body armoring system, we provide body armor solutions that can be configured to meet varying threat levels and mission requirements. Operational commanders are then able to determine what equipment their Marines will wear based upon specific mission requirements and environmental conditions.

Evolution from Outer Tactical Vest (OTV) to Modular Tactical Vest (MTV)

Fully recognizing the trade-off between weight, protection, fatigue, and movement restriction, we are providing Marines the latest in personal protective equipment. A current example is the Modular Tactical Vest or MTV.

Combat operations in Iraq and Afghanistan highlighted a need to evolve our personal protective vest system. Therefore, in March of this year, we started transitioning to a newly

designed MTV. The design features of the MTV were developed from direct input provided by Marines and Sailors from One, Two and Three Marine Expeditionary Forces. Marine Corps Systems Command used that input to host an industry day with twenty different vendors to share the required capability we wanted filled. Eighteen of these participating vendors submitted a prototype solution for consideration. From these eighteen submissions, six candidate solutions were selected and included in a Limited User Evaluation. As a result of this evaluation, three candidate solutions were selected for a more rigorous Field User Evaluation. The final optimal solution, which was more than 80 percent of the field user participants, selected the MTV.

The MTV provides a number of enhancements to the OTV. These include a quick release for emergency egress and medical access, increased lower back and kidney fragment protection, integral Side SAPI Small Arms Protective Insert carriers, channels for communication wires, improved weight distribution, increased load carrying capability and rifle bolsters. The MTV incorporates our existing Enhanced Small Arms Protective Inserts, or E-SAPI plates.

The acquisition objective for the Modular Tactical Vest is 60,000 systems. Deliveries began in March 2007, with anticipated completion of deliveries in October 2007.

Enhanced Small Arms Protective Inserts (E-SAPI)

Every Marine in theater today has the Enhanced Small Arms Protective Insert. These inserts provide more protection against a wider variety of small arms threats than its predecessor the Small Arms Protective Insert. It protects against a wide range of 7.62mm rifle ammunition threats. Today, all Marines are issued the E-SAPI prior to their deployment.

Enhanced Side Small Arms Protective Inserts (Enhanced Side SAPI)

Operation ENDURING FREEDOM/Operation IRAQI FREEDOM I/Operation IRAQI FREEDOM II is the first time in U.S. history that all wartime casualties have been autopsied by the Armed Forces Institute of Pathology (AFIP) to determine a cause of death. An evaluation of data collected from autopsies performed on Marines confirmed that side torso protection should be added to our earlier modular personal protection system. Therefore, through a rapid development and fielding effort, we successfully satisfied the in theater requirement for 28,882 Side Small Arms Protective Insert systems early last year (2006).

All Marines in theater are issued the Enhanced Side Small Arms Protective Inserts (Side-SAPI) that will provide the individual Marine greater protection against a wider variety of small arms threats to the side of their torso prior to their deployment. The Marine Corps is currently fielding these plates to the rest of the Corps.

Closing

It is of the utmost importance to the Marine Corps that we provide robust personal protection solutions to our warfighters -- and provide these solutions to them immediately. Working with our nation's dedicated manufacturing base, the Marine Corps continues to be able to provide the best possible levels of personal protection to known and anticipated threats; and we remain committed to aggressively advance our equipment to meet the ever-changing threats.

Working with the Army, the technology base and industry, we are doing everything we can to ensure the safety of our Marines by providing them with the best and most effective force protection equipment. The lives of our Marines, Soldiers, and Sailors are a precious asset. Their preservation through better and more capable equipment has been, and will always be, the

highest priority of the Marine Corps Systems Command. Your support for continued robust and fully funded force protection programs has permitted the acquisition community and the Department of Defense to continue with proactive approaches to counter the threat and ensure our warfighters' safety.

We cannot afford to lose sight of the lessons we have learned about our enemy, and about our own capabilities, through the loss of American lives. On behalf of your Marines, I extend great appreciation for your support to date and thank you in advance for your ongoing efforts to support our brave servicemen and women in harm's way. Thank you.

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HOUSE ARMED SERVICES
COMMITTEE

STATEMENT OF

ROGER M. SMITH
DEPUTY ASSISTANT SECRETARY OF THE NAVY
(EXPEDITIONARY WARFARE)

BEFORE THE

HOUSE ARMED SERVICES COMMITTEE

ON

NAVY BODY ARMOR PROGRAMS

JUNE 6, 2007

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HOUSE ARMED SERVICES COMMITTEE

Mr. Chairman and members of the committee, thank you for the opportunity to appear before you today to discuss the Navy's individual body armor requirements and equipping process. The Navy procures and fields various body armor configurations based on our ashore and maritime mission requirements as defined by combatant commanders. These systems all provide a minimum of defense level IIIA ballistic protection while enhanced systems provide level IV protection to meet the most stressing mission requirements for Navy Forces.

The Navy personnel deployed worldwide currently fluctuates around 59,000 depending on unit rotations, of which about 31,000 are engaged in the Global War on Terror (GWOT) in the CENTCOM Area of Responsibility (AOR) with 13,000 on the ground. About 90 percent of the personnel in the CENTCOM AOR are deploying and supporting ground forces in their traditional military specialties, or core competencies ashore, such as base and port operations support, medical services, explosive ordnance disposal teams, construction and engineer battalions (Seabees), electronic warfare, mobile security forces, detainee operations, infrastructure protection, and traditional joint intelligence and staff support. Navy personnel fulfill four basic requirements; 1) unit or individual, 2) active component (AC) / reserve component (RC) or a blended AC/RC mix, 3) joint requirements or internal Navy requirements; and 4) pre-planned, existing structure or ad-hoc needs. Navy personnel are equipped with body armor appropriate for the required mission that the individual or the unit they are assigned to will perform.

The Navy acquires body armor for three main mission requirements:

1.) Navy expeditionary forces;
2.) Individual augmentees assigned to joint forces; and,
3.) Shipboard anti-terrorism.

The Navy leverages Army and Marine Corps research and development of individual ballistic protection materials and equipment, both of which have extensive programs to maintain a high level of personal ballistic protection. The Navy capitalizes on these investments by using the most recent approved specifications and test procedures from the Army's Natick Soldier RDT&E Center, and procures body armor that meets these requirements, while incorporating features dictated by the Navy's operating environments. The Navy also adopts Marine Corps body armor solutions when they accommodate our mission needs and fielding goals.

NAVY EXPEDITIONARY FORCES

Navy expeditionary forces primarily comprise the core missions of Naval Construction Forces (NCF), or Seabees, airlift support, cargo handling, maritime security, Explosive Ordnance Disposal (EOD), Riverine, and medical / Marine Corps support. The body armor for these personnel is procured through various buying agencies. Currently, all deploying NECC Forces are equipped with Level IV ballistic protection.

Naval Construction Force (NCF) Body Armor

Determination of NCF requirements is a collaborative process between the Navy Expeditionary Combat Command (Type Commander), First Naval Construction Division (Fleet), Naval Facilities Engineering Command (Systems Command), OPNAV N43

(Resource Sponsor), and the Naval Facilities Engineering Logistics Center (Table of Allowance (TOA) Managers). A Logistics Working Group meets quarterly to review and assess new requirement recommendations, which are based on research of industry product development, Department of Defense (DoD) standards, field testing results, and procurement options. Interoperability and commonality of products with the Marine Corps and /or the Army is maximized to the greatest extent possible. Body armor is acquired and fielded in accordance with Task Force Commander Area of Operations Doctrine. Fielding of requirements is based on the Fleet's prioritization of needs.

We currently have 1,700 Seabees deployed in the Central Command area of operations, with over 50 percent of those deployed to Operation Iraqi Freedom (OIF). These forces are typically on 179-day rotations into theater.

The NCF is currently outfitted with the standard Interceptor Outer Tactical Vest (OTV) with Enhanced Small Arms Protective Insert (ESAPI) plates, groin protector, throat protector and side plates for enhanced ballistic protection. However, the Navy is currently procuring 4,480 Modular Tactical Vests (MTV) for the NCF through the Marine Corps. Deliveries are expected this month through July 2007, and will outfit seven battalions, two of which will be deploying in September 2007. The vests will be fielded with ESAPI plates to provide level IV ballistic protection, while providing more protection from shrapnel in the lower back and kidney area. The MTV also features a load-bearing system for weight distribution, and a quick-release system for emergency access. The decision to shift to the MTV was based on improved comfort and wear, and the strong desire for continued interoperability with the USMC. Additional body armor ensemble protection is fielded as required by the operational commander and the threat.

Non-NCF Expeditionary Forces

Requirements for non-NCF expeditionary personnel, such as maritime security forces, are determined through the Navy's requirements generation process. There are three basic requirements for body armor in the NECC Force: operations in the land environment, operations over the water, and Navy EOD. Units that operate exclusively on land will continue to use OTVs with Level IV ballistic plates and additional deltoid and auxiliary protector kits, and MTVs as they become available. These units include both traditional units, such as Navy Cargo Handling Battalions (within NAVELSG), as well as new units like the Maritime Civil Affairs Group and Expeditionary Combat Readiness Center. Units that operate on the water, such as Naval Coastal Warfare and the Riverine Force, wear a lightweight, Tactical Maritime Body Armor System (TMBAS), which includes 25% more coverage than the Interceptor OTV, with ESAPI front, back and side panel ballistic plates, providing level IV protection. These vests incorporate float packs that provide positive buoyancy and a single pull release mechanism, which allows a distressed operator to eject the front and back inserts simultaneously. The vest also offers the option to attach additional groin, throat and shoulder panels as a TMBAS fragmentation accessory package. The Table of Allowance (TOA) for the Navy's Mobile Diving and Salvage Units is currently being revised to include TMBAS and other new unit TOAs, such as Level III Visit Board Search and Seizure (VBSS) and Maritime Intercept Operations (MIO) Intelligence Exploitation

Teams, are being drafted with TMBAS. The final non-NCF requirement for body armor is Navy EOD, which utilizes a unique maritime version of the Combat Integrated Releasable Armor System (CIRAS). The CIRAS system incorporates ESAPI plates and additional fragmentation protection kits.

Marine Corps Expeditionary Forces Support Personnel

Navy medical, religious and other support personnel (e.g., doctors, dentists, corpsmen, chaplains, religious support personnel, etc.) assigned to our Marine Expeditionary Forces are provided the body armor the Marine Corps issues to its personnel and to the level of protection required by the units they are assigned to.

SHIPBOARD ANTI-TERRORISM BODY ARMOR

Shipboard personnel wear the "Point Blank," (contractor's name) concealable body armor. The Point Blank ballistic vest can be worn under other uniform attire, if required, providing Level IIIA ballistic protection. The vest also provides extended length front and back coverage, as well as side ballistic coverage. It is adjustable through elastic straps, has removable ballistic panels (allowing the vest carrier to be laundered), and can accept front and back ESAPI ballistic plates, which provide level IV protection.

Level I and II Visit Board, Search and Seizure / Enhanced Maritime Intercept Operations (VBSS / EMIO)

Shipboard personnel conducting VBSS / EMIO wear uniquely-configured equipment due to the physical requirements of transferring between rigid hull inflatable boats to ships and vessels which are being boarded, as well as negotiating ladders and passageways while aboard the ship or vessel. These teams wear the "London Bridge" (contractor's name) ballistic tactical vest, with front, back and side ballistic ceramic plates, which provide level III ballistic protection. The plates are neutrally buoyant for enhanced safety during water operations. The London Bridge ballistic tactical vest also acts as a floatation vest and is adjustable through elastic straps, which provide a firm and custom fit.

INDIVDUAL AUGMENTEES

Individual Augmentees (IAs) comprise almost half of the approximately 13,000 Navy personnel deployed on land within the CENTCOM AOR in support of the GWOT.

Approximately half of all IA's destined for CENTCOM will go through a 14-day pre-deployment training course at Fort Jackson, South Carolina. This Navy Individual Augmentee Combat Training (NIACT) curriculum was developed in coordination with the Army. Theater or mission specific training, which many IAs may require, is determined by the Combatant Commander, and the IAs receive it prior to deployment at other training facilities. Additionally, eight hours of online training on rights and responsibilities is required to be completed through Navy Knowledge Online prior to deployment. Approximately 360 IAs per month are trained at Fort Jackson. The Army's PEO (Soldier) issues the standard Army IPE to Navy IAs at this site.

The remaining IAs who do not attend NIACT receive their combat skills training in conjunction with their mission specific training at Army Training and Doctrine Command sites around the country. These IAs are trained and issued standard Army individual protection equipment by the resident Army issuing authority at the training sites.

CONCLUSION

The Navy procures and equips its forces with the best available body armor, tailored to our maritime and joint mission requirements and continues to seek improvements in equipment while leveraging Army and Marine Corps research and development initiatives.

RECORD VERSION

STATEMENT BY

LIEUTENANT GENERAL N. ROSS THOMPSON, III
MILITARY DEPUTY TO THE ASSISTANT SECRETARY OF THE ARMY FOR ACQUISITION, LOGISTICS AND TECHNOLOGY

AND

BRIGADIER GENERAL R. MARK BROWN
PROGRAM EXECUTIVE OFFICER SOLDIER

BEFORE THE

COMMITTEE ON ARMED SERVICES

UNITED STATES HOUSE OF REPRESENTATIVES

ON THE INTERCEPTOR BODY ARMOR SYSTEM

JUNE 6, 2007

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ON ARMED SERVICES

Introduction

Chairman Skelton, Congressman Hunter and distinguished members of the Armed Services Committee: on behalf of the Assistant Secretary of the Army for Acquisition, Logistics and Technology, the Program Executive Officer for Soldier, Brigadier General R. Mark Brown, and I thank you for the opportunity to assure you of the capability of Interceptor Body Armor (IBA) to provide the best protection for the men and women who are serving our country, specifically those serving in Iraq and Afghanistan. It is our privilege to represent the Army leadership, the military and civilian members of the Army Acquisition community. Most importantly, it is my privilege to serve our Soldiers and those who lead them who rely on us to provide them with the best force protection equipment available so they can accomplish their missions and return home safely. With us today is Specialist Gregory Miller from C Company, 2nd Battalion, 327th Infantry, 101st Airborne Division (Air Assault). SPC Miller sustained a hit by a 7.62mm round while wearing Interceptor Body Armor and was able to continue his mission as a result of the IBA protection.

Force protection is the U.S. Army's number one priority. We value the lives of each and every one of our Soldiers and the lives of all men and women who serve our country. We do everything we can to ensure that we provide them with the best protection available when they go into harm's way. Interceptor Body Armor has been proven to be the best product available, through rigorous live-fire and environmental testing, and it has been proven in combat. If we were

going to Iraq or Afghanistan tomorrow, IBA is what we would wear—not because of orders, but because we know it is the best.

Every Soldier has at least one set of body armor, and when improvements are made, we field the new equipment to our troops as soon as possible, with priority to those in combat or deploying to combat.

We are not satisfied with the status quo. We continue to seek improvements to body armor, and when we are presented with a potential improvement, we test it to the highest standards. When it meets those standards, production and fielding begin to provide the best protection available.

Today we will address the fact that the body armor we are presently fielding to our troops is the best available anywhere.

Procurement Overview

Recent media reports have called into question the Army's acquisition process as it pertains to body armor. We can assure all of you that no favoritism has been shown in the acquisition process, as has been alleged by Pinnacle Armor, a company based in Fresno, California. Dragon Skin has been rejected by the Army because it has repeatedly failed to meet our performance specifications during independent testing.

Over the last three years alone, industry has had three opportunities to compete in Army body armor solicitations. Pinnacle Armor has, to our knowledge, never participated in the full and open solicitation process.

Pinnacle Armor representatives did participate in an industry day on March 7, 2006, but did not respond to a subsequent request for information on innovations in body armor technology.

The Army also has periodic Soldier Protection Demonstrations, at which vendors may demonstrate their products. Pinnacle presented Dragon Skin for evaluation in June 2006. The user evaluation panel—consisting of three members from the Directorate of Combat Developments, U.S. Army Infantry Center, and two members from Project Manager Soldier Equipment—eliminated Dragon Skin from consideration because it was deemed to be operationally unsuitable. First, it is not a modular system and therefore cannot be configured based on threat level. Second, it weighs considerably more than our current body armor.

Potential contractors may also submit ideas through the web-based Soldier Enhancement Program, administered by the U.S. Army Infantry Center.

The Army has shown great interest in a flexible system of armor such as Dragon Skin, and we want to be apprised of any improvements that Pinnacle might make to its armor. But, any system must meet the same rigorous testing standards applied to our current products, standards that are higher than those of the National Institute of Justice. So far, Dragon Skin has not measured up in such testing.

IBA Proven in Live-Fire and Environmental Testing—and in Combat

Interceptor Body Armor is a modular system that features an outer tactical vest with hard protective plates called Enhanced Small Arms Protective Inserts

(ESAPI). The IBA system has been subjected to rigorous ballistic testing in ambient conditions and in environmental conditions that simulate those of the current theaters of operation in Iraq and Afghanistan. The testing also simulates conditions on the runway before and after transport as well as conditions in the belly of transport aircraft. The IBA system has passed those tests with no failures.

For reasons of operational security, the Army prefers not to publicize detailed results of ballistic testing. We face a media-savvy enemy, and information on test protocols can be exploited and used against our Soldiers. However, recent media reports that have questioned our armor have compelled us to release limited test data in the interest of assuring Soldiers, their families, Members of Congress, the media, and the general public that we are doing everything we can to protect the troops. Our body armor is the best that is available. We are confident in its ability to stop bullets and fragments and to save lives, and our Soldiers and their families should have every confidence in this armor.

Dragon Skin Suffers Catastrophic Failure in Testing

As stated earlier, Pinnacle Armor has never submitted a proposal to a U.S. Army solicitation for a contract for ballistic plates or soft body armor. Still, the Army has shown interest in Pinnacle's Dragon Skin product because the Army believes that a flexible system could have potential benefits in the field.

In four tests conducted from May 2004 to February 2006, Dragon Skin failed to meet Army standards. A fifth test, in December 2005, was inconclusive.

Because of reports that Soldiers may have been wearing Dragon Skin in theater, the Army issued a Safety of Use Message in March 2006 that stated that "in its current state of development, Dragon Skin's capabilities do not meet Army requirements." Soldiers were asked to dispose of any unauthorized body armor.

In the interest of fairness and because of intense media interest in Dragon Skin, the Army chose to run a full test of Dragon Skin last Spring. In May 2006 H.P. White Laboratory Inc., an independent facility certified by the National Institute of Justice for ballistics testing, tested Pinnacle Armor's SOV 3000 Level IV Dragon Skin vests, using the same test protocols used with the Interceptor Body Armor system.

Tests were conducted in ambient conditions and after exposing vests to a variety of environmental conditions. Vests were exposed to extreme temperatures (-60 degrees Fahrenheit to 160 degrees Fahrenheit) to simulate the extreme conditions of transporting body armor to theater and the environment common in the Middle East. Test protocols also call for immersing vests in saltwater, oil and diesel fuel to simulate various conditions of war, an impact drop test, and a temperature shock test. Before testing was halted, the Dragon Skin vests suffered 13 of 48 first - or second - record shot complete penetrations, failing four of eight initial subtests.

Though one first shot bullet complete penetration results in automatic First Article Test (FAT) failure, the Army continued to test Dragon Skin for almost three days to eliminate any perception of bias in testing.

Dragon Skin's design was found to be sensitive to curvature induced airgaps, shot location, and extreme temperatures. Dragon Skin failed to maintain ballistic integrity after six hours at temperatures Soldiers experience in Operations Iraqi Freedom and Enduring Freedom. The adhesive used to hold the Dragon Skin discs together failed in extreme heat. The discs slipped to the lower portion of the armor panel. In actual use, this would have exposed much of the torso region.

It is important to reiterate that this was the same fair and independent testing that was passed by our current Interceptor Body Armor system with zero catastrophic failures, and zero first shot complete penetrations.

The Weight Factor

Although no body armor will be fielded to our troops until it has passed rigorous testing, there is another key factor when determining a system's operational suitability: the weight of the system. Soldiers must be able to maneuver in combat, and data from human factors engineers suggest that a Soldier's total combat load should not exceed one-third of his or her body weight. A considerably lighter load is optimal.

The current Outer Tactical Vest (OTV) with ESAPI plates, size large, weighs approximately 28 pounds. A Dragon Skin SOV 3000 that offers a comparable total area of coverage weighs 47.5 pounds. An Improved Outer

Tactical Vest that will be fielded soon is three pounds lighter than the current OTV.

Body armor is but one component that adds weight to a Soldier's combat load. We must also consider the weights of helmets, firearms, ammunition, boots, clothing, batteries, and essentials such as water.

The Army continues to look at ways to reduce the weight of body armor and all other Soldier equipment and to better distribute that weight.

The Army and Marines also continue to evaluate potential future threats so that our next-generation ballistic plates stand up to current and future threats. In a report dated April 26, 2007, the Government Accountability Office found that: "Army and Marine Corps have taken several actions to meet theater requirements, assure testing, and share information on body armor.
We also found that contractors and non-DOD civilians receive body armor if this provision is included in a negotiated contract. Specifically, we found 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. "

There have been eight improvements to the current IBA system, including four vest weight reductions; enhancements to the ballistic plates; the introduction of supplemental protection for the sides, arms, neck and groin areas; and improvements to the overall design of the outer vest.

Cost is Not an Issue

The Army fields what is best for our troops in terms of force protection. Cost and affordability are not issues. IBA has been deemed the best through testing, and that is why it is our body armor of choice. We have all of the funding support we need to make sure that every Soldier has the protection he or she needs. However, the Army is continually evaluating new technology, and additional funding for research and development would expedite that work. As a matter of fact, in the interest of fairness, the Army spent $250,000 on the May 2006 test of Dragon Skin, which was an extra step taken to ensure our evaluation was totally objective.

Conclusion

This is one of the most dangerous times in our history, and the Army takes force protection very seriously. Body armor has come a long way since the Vietnam era, when Soldiers were provided with soft flak vests. Body armor evolved through the 1990s, and each new generation has increased coverage and ballistic protection. We are confident that our current system is the best that is available, but the Army will continue to look for ways to increase protection and

reduce weight. It is imperative that we provide our Soldiers with the best possible equipment to enable their mission success and safe return home.

We thank you for your continued leadership, sound advice, and strong support. It is a distinct honor to appear before you today, and to be able to assure the Members of Congress, the American people, and our Servicemembers and their families, that we **have** the best equipment, and that we are totally dedicated to continually improve that equipment.

Prepared Statement

Hon. Philip E. Coyle, III
Senior Advisor
World Security Institute

Before the House Committee on Armed Services

Wednesday, June 6, 2007

Mr. Chairman and Members of the Committee, I very much appreciate the opportunity to appear before you today to discuss the comparative body armor tests sponsored by NBC and conducted in Germany early last month.

I last appeared before the Air/Land Subcommittee of this full Committee on January 18, 2007. Then as now I provide a description of my affiliations; I do not have a financial conflict of interest in this matter. This declaration constitutes the first section of my prepared statement. I would like to submit my entire statement for the record.

I currently am employed as a Senior Advisor to the non-profit Center for Defense Information, a division of the World Security Institute, a Washington, D.C.-based national security study center. To help insure our independence, the World Security Institute and the Center for Defense information do not accept any funding from the Federal government, nor from any defense contractors.

From 1994 to 2001 I served in the Pentagon as Assistant Secretary of Defense and Director, Operational Test and Evaluation. In this capacity, I was principal advisor to the Secretary of Defense and the Undersecretary of Defense for Acquisition, Technology and Logistics on test and evaluation in the DOD. I had OSD OT&E responsibility for over 200 major defense acquisition systems.

From 1959 to 1979, and again from 1981 to 1993, I worked at the Lawrence Livermore National Laboratory. Over those 33 years I worked on a variety of high technology programs, and retired from the Laboratory in 1993 as Laboratory Associate Director and

deputy to the Director. During the Carter administration I served as Principal Deputy Assistant Secretary for Defense Programs in the Department of Energy.

In my current capacity at the Center for Defense Information I provide independent expertise to the media on various defense matters. I have over 30 years of test and test-related experience involving U.S. defense systems and equipment. Knowing my background, NBC invited me to observe side-by-side body armor tests that were conducted by the Beschussamt Mellrichstadt ballistics laboratory in Germany on May 3, 2007.

My role was to observe those tests, to provide advice and commentary where I saw fit, and I neither requested nor received any compensation from NBC for my time spent traveling to the test laboratory nor for observing the tests.

Introduction

This Committee needs to be open-minded about looking at the questions which the NBC body armor tests have raised.

I say this because you know that body armor is of critical importance to US military personnel in Iraq and Afghanistan. However, in the recent past this Committee has not shown itself to be open-minded on issues raised by NBC. I refer to NBC reporting on Active Protection Systems. The House Armed Services Committee held two hearings to denounce NBC for raising that issue, and those hearings did not engage the specific facts which NBC raised. In the course of those two hearings this Committee received testimony from the US Army which was misleading and, sometimes, just plain wrong.

On the positive side, after those two hearings, Senator John Warner requested an independent study of Active Protection Systems. That study was completed two months ago by the Institute for Defense Analyses (IDA) and showed that NBC was correct. The IDA study showed that the Trophy Active Protection System was the farthest along, as

NBC had reported, and ranked the system which the Army and this Committee favored, the Raytheon "Quick Kill" system, ninth in terms of technical readiness.

In short, the IDA report confirmed that NBC got it right.

With respect to the questions NBC has raised on body armor, I hope this Committee will consider that NBC may have gotten it right again.

The NBC Body Armor Tests ~ The Results

From the outset it was apparent that NBC would not have the capacity to conduct full-scale body armor tests that would capture all of the variables of importance to the US Army. For example, NBC did not conduct tests at high or low temperatures; all the rounds fired in the NBC body armor tests were fired at ambient temperature.

Nevertheless, it was important for NBC to be sure that their tests, although limited, were fair and conducted according to professional standards, which I can attest they were.

The results of the NBC tests - which are summarized on their web site - were significant. The tests showed that the Army's Interceptor body armor meets minimum US Army requirements, something which I myself noted on camera. The NBC tests also showed that the ballistic protection from Dragon Skin body armor is better.

This testimony now reports on the results of the ballistics tests commissioned by NBC News and conducted on May 3, 2007, in Germany. At NBC's request, the Beschussamt Mellrichstadt laboratory performed comparative testing of the Army's body armor, Interceptor, which employs rigid plates inserted into large pockets in an outer vest, against Dragon Skin, a flexible body armor that employs a series of overlapping discs each a little larger in diameter than a silver dollar. The Beschussamt Mellrichstadt Laboratory is well familiar with the specifications governing body armor testing, regularly conducts body armor tests, and has an outstanding reputation as "the BMW" of ballistics testing labs.

Body armor vests are tested against a special kind of soft clay that simulates the resistance of the human body and provides a way to measure blunt force trauma. After each shot, each vest is removed to assess whether or not the bullet has penetrated the body armor, and if not, to measure the blunt shock trauma to a person wearing the vest. The US Army generally considers a cavity deeper than 44 mm to be a failure, even if the bullet does not penetrate, because the shock can be so great that the wearer of the body armor could die anyway. (The Army standard is 47 mm for certain armor piercing ammunition.) The sternum is a particularly dangerous area for blunt shock trauma as chest bones can be broken and propelled into the heart, lungs, etc. A ruptured spleen, or other damaged organs can be very dangerous, if not fatal, also.

The measure of this blunt force trauma is called the "BFS" or "Back Face Signature," that is, the depth of the indentation caused in the clay when a bullet strikes a body-armor vest. NBC quotes the National Institute of Justice when explaining this procedure, "When armor is tested, it is mounted on clay backing material whose consistency is controlled. After the shot, the depth of the clay deformation behind the armor panel is measured and recorded as the BFS."

The NBC tests consisted of six groups of test firings, involving a total of 31 rounds of ammunition of different types and lethalities.

Test #1 – Dragon Skin Only

Before comparative testing began, a preliminary series of six shots were fired against Dragon Skin only using 7.62 caliber x51 mm M80 rounds. This is called a Level III threat, meaning capable of defending against high powered rifle ammunition, and both Dragon Skin and Interceptor are NIJ certified at this level. The Army requires that three rounds be defeated; the NIJ requires that 6 rounds be defeated. In this first test series six rounds were fired at Dragon Skin body armor and it stopped all six rounds allowing no penetrations. The back face signatures were well within the Army standard, being 30, 35, 31, 25, 29 and 29 millimeters, respectively.

This test series showed that Dragon Skin could defeat this threat and meet both the Army standard and the tougher NIJ standard.

Test #1a and 1b – First Comparative Tests

From this point forward in this open testimony I do not speak to the specific caliber or construction of each round fired in the NBC sponsored tests. Similarly, in their broadcast and on their website, NBC News did not describe the specific caliber or construction of ammunition used in the tests, because the Army believes that level of detail may assist the enemy. NBC News did, however, share those details with the Army, and the Army itself reported some of those details in an open press conference on May 21.

Test 1a, the first of the comparative test series, consisted of four rounds of a type of armor piercing ammunition fired against an Interceptor Level IV vest with Enhanced Small Arms Protective Inserts (ESAPI plates) installed in an outer vest. Level IV refers to a higher level threat from armor piercing ammunition.

TEST #1a Conducted on INTERCEPTOR Level IV vest with ESAPI Plates

One round of armor piercing ammunition. *Results: no penetration and BFS of 30mm*

Additional round of armor piercing ammunition. *Results: no penetration and BFS of 32mm*

Additional round of armor piercing ammunition. *Results: no penetration and BFS of 47mm*

Additional round of armor piercing ammunition. *Results:* ***COMPLETE PENETRATION***

This test showed that the Army's Interceptor body armor meets minimum US Army standards for this type of round at ambient temperature which only require body armor to stop one round of this type of ammunition. However, when taken to a third and fourth round, the blunt force trauma on the third round was high, 47 mm, and on the fourth shot there was a complete penetration of the Interceptor body armor.

Test #1b, the second test series, consisted of six rounds of the same type of armor piercing round as was fired in Test 1a, but now fired against Dragon Skin.

TEST #1b Conducted on DRAGON SKIN Level IV Vest

1 round of armor piercing ammunition. *Results: no penetration and BFS of 23mm*

Additional round of armor piercing ammunition. *Results: no penetration and BFS of 23mm*

Additional round of armor piercing ammunition. *Results: no penetration and BFS of 27mm*

Additional round of armor piercing ammunition. *Results: no penetration and BFS of 24mm*

Additional round of armor piercing ammunition. *Results: no penetration and BFS of 23mm*

Additional round of armor piercing ammunition. *Results: no penetration and BFS of 20mm.*

This test showed that Dragon Skin also meets the US Army's standards for this type of round at ambient temperature. Better still, Dragon Skin allowed no penetrations in six rounds fired, and the blunt force trauma from each was significantly less than with Interceptor. On average, the Back Face trauma signature was 56% greater with Interceptor than with Dragon Skin.

This test also was significant because the Army has indicated that in its test of Dragon Skin last year that Dragon Skin could not defeat this type of ammunition. In the tests that I observed it clearly did, and never failed.

Tests #2a and #2b – Second Comparative Tests

Test #2a was conducted with a type of armor piercing incendiary ammunition and

consisted of six rounds fired at the Army's Interceptor body armor.

Test #2a Conducted on INTERCEPTOR Level IV vest with ESAPI Plates

One round of armor piercing incendiary ammunition. *Results: no penetration and BFS of 34mm*

Additional round of armor piercing incendiary ammunition. *Results: no penetration and BFS of 41mm*

Additional round of armor piercing incendiary ammunition. *Results: no penetration and BFS of 37mm*

Additional round of armor piercing incendiary ammunition. *Results: no penetration and BFS of 43mm*

Additional round of armor piercing incendiary ammunition. *Results: no penetration but BFS of 51mm* ***(FAILS BFS STANDARD)***

Additional round of armor piercing incendiary ammunition. *Results:* ***COMPLETE PENETRATION***

This test showed that the Interceptor body armor can stop this type of armor piercing incendiary ammunition, but when taken to a fifth round the blunt force trauma exceeded general Army standards, and the sixth round allowed a complete penetration.

Test #2b was conducted with the same type of armor piercing incendiary ammunition as in Test 2a but now against Dragon Skin. Six rounds were fired.

Test #2b Conducted on DRAGON SKIN Level IV Vest

One round of armor piercing incendiary ammunition. *Results: no penetration and BFS of 26mm*

Additional round of armor piercing incendiary ammunition. *Results: no penetration and BFS of 23mm*

Additional round of armor piercing incendiary ammunition. *Results: no penetration and BFS of 26mm*

Additional round of armor piercing incendiary ammunition. *Results: no penetration and BFS of 23mm*

Additional round of armor piercing incendiary ammunition. *Results: no penetration and BFS of 11mm*

Additional round of armor piercing incendiary ammunition. *Results: no penetration and BFS of 27mm.*

This test showed that Dragon Skin can defeat this type of armor piercing incendiary round, as it did six times. There were no penetrations and the depth of the blunt force trauma signature was dramatically less than for Interceptor. On average, in this test series, the Back Face trauma depth was nearly 82% higher for Interceptor than for Dragon Skin.

Test #3 – Dragon Skin only

Test #3 was of Dragon Skin alone. The ammunition fired was of a composite nature. The Army does not require its body armor to defend against a bullet of this lethality. Three rounds were fired.

Test #3 Conducted on DRAGON SKIN Level IV Vest

1 round of armor piercing ammunition of a "composite" nature. *Results: no penetration and BFS of 22mm*

Additional round of armor piercing ammunition of a "composite" nature. *Results: no penetration and BFS of 20mm*

Additional round of armor piercing ammunition of a "composite" nature. *Results: no penetration and BFS of 14mm*

This test showed that Dragon Skin can defeat a highly lethal type of armor piercing ammunition. Also notable is that the Back Face trauma signature on these three shots

averaged less than 19 mm, less than half of the Army's standard, a standard which is only required for less lethal types of ammunition.

Army Briefings

Shortly after NBC briefed Brig. Gen. Mark Brown on the results from the NBC sponsored tests, Gen. Brown called to offer me a briefing from his Chief Scientist on the Army tests conducted by H.P. White in May 2006. I accepted, and a few days later Lt. Col. Karl Masters (USA Retired), a senior staff member of Gen. Brown, called to arrange to brief me in California.

In my experience there are PowerPoint briefings and there are PowerPoint Briefings, and it is often advisable to look at the actual data. For this reason, I asked Lt. Col. Masters before he came out to bring the actual test results from the tests conducted last year for the Army. Lt. Col. Masters indicated that he would.

When he arrived, he did not have those test results and said that "the rules had changed," and that I could not see the test results unless I requested them in writing, which I did later that same day. I received an e-mail from Lt. Col. Masters a few days later saying that he had submitted my request to his chain of command and would advise me of the "outcome of adjudication" as soon as he knew it.

That was three weeks ago and I have not heard anything further.

Lt. Col. Masters told me that the briefing I received was originally prepared for Rep. Marcy Kaptur. The briefing to me was similar to what Brig. Gen. Brown used in his press conference on May 21.

To my understanding, there are discrepancies between the briefing I received and what actually happened. Although I have tried to resolve these discrepancies, without additional data from the Army, that is not possible.

For example, the briefing talks about 48 shots having been fired, but Lt. Col.. Masters first told me 96 shots were fired at Dragon Skin vests in those tests, then later said it was 80 shots. In his May 21 press conference, Gen. Brown said that two shots each had been fired at the front back and sides, which would mean 64 shots fired at 8 vests. I believe the correct number is something like 88. In any case I believe it is not 48 shots as reported to this Committee and in the May 21st press conference.

Lacking the actual test results report, I have not been able to determine which of the 80-odd shots are being counted in the PowerPoint briefings, the conditions under which those shots were taken, or how all the shots were scored.

Also it appears to me that the Army's PowerPoint briefing is misleading in its comparison of body coverage between the Army's Interceptor body armor and Dragon Skin manufactured by Pinnacle Armor. In his briefing to me on last years Dragon Skin testing, Lt. Col. Masters told me that Interceptor's body coverage was compared to Dragon Skin without the armor plates that actually provide the protection. I commented at the time that I thought this was misleading, but got no response.

A fair comparison would measure how much coverage each of the vests provided. The disadvantage of the Army's system is there are gaps in the front, back and sides where bullets can get through. Pinnacle's Dragon Skin armor covers the whole torso.

In the briefing the Army presented to me, and in the briefing which Brig. Gen. Brown gave to the press on May 21, the Army stressed the overlapping nature of the discs in the Dragon Skin body armor, and showed how at some points two discs overlap, and at other points three discs overlap, leaving a portion of every disc where there is no overlap. The Army asserted that Dragon Skin could not be effective because over about 50% of the vest the discs are not overlapped. As Gen. Brown stated in his May 21 press conference, "So what you see, the laws or probability and statistics will take hold in the live-fire test. There's probably a 50 percent probability of impact in a single-disk coverage area." Gen. Brown went on to suggest that a single disc could not stop armor piercing ammunition. If

this were true, Dragon Skin would have failed in a significant fraction of the ballistic tests in Germany, and it did not. In the tests of Dragon Skin that I observed there were no penetrations whatsoever, not by armor piercing rounds, not by armor piercing incendiary rounds, and not by an even tougher threat. And as I noted earlier the blunt force trauma with Dragon Skin was less than with Interceptor.

The Army has launched a powerful defense of its Interceptor system, and in its May 21 press conference had a very convincing display with two scales that showed Dragon Skin to be heavier. However, in the body armor tests which NBC sponsored in Germany, the ballistics laboratory weighed each vest before each shot series. There was a difference, the Dragon Skin panels were about a pound per side heavier, but nothing like the 19.5 pound difference shown by the Army. A fair weight comparison would be of vests of the same size, designed to defeat the same threats, allowing the manufacturer to trade off the weight of the outer tactical vest with weight in the ceramic armor to achieve the best overall protection for the US military. This is an example of how difficult it can be to compare test results a year apart, conducted under different circumstances, even when all that is involved is a simple comparison of weights.

Given the NBC test results, the continuing refusal of the Army to undertake side-by-side testing is puzzling. When NBC News reporter Lisa Myers asked Gen. Brown whether the Army would do side-by-side testing, Gen. Brown said that the Army doesn't do side-by-side testing but "tests to a standard." Of course they test to a standard, but NBC News tested both vests to the Army's standard and Dragon Skin performed better. Side-by-side testing means testing both types of body armor under the same conditions, according to the same scoring rules, in short, a level playing field.

In his recent press conference, Gen. Brown said that he had “all the money and all the leadership support” he needed “to get body armor and to get improvements to body armor.” He also said that the Army is “never satisfied with the status quo,” and that the Army is “always looking for the next best thing.” And that if there is “something better out there, we're going to buy it -- after we've live-fire tested it.”

If this is true, doing fair, contemporary side-by-side tests should not be a problem.

I am not saying that Interceptor doesn't provide good protection. Nor is retired Army Gen. Wayne Downing, who observed the tests with me. He noted on camera, as did I, that Interceptor performed well during the NBC News tests. But Dragon Skin was better, notably against multiple rounds and in reducing blunt force trauma, which can kill even if a bullet doesn't actually penetrate the vest.

Dragon Skin Advantages

From the body armor tests that I observed in Germany, Dragon Skin appears to have five advantages, advantages in which I would think the Army and this Committee would be interested. Those advantages appear to be:

1. Dragon Skin is flexible and conforms better to the contours of the human body, which is also helpful for female soldiers.
2. Dragon Skin covers more of the torso and does not leave gaps.
3. Dragon Skin is better against multiple shots.
4. Dragon Skin reduces blunt force trauma. The depth of cavities caused in the test clay by shots fired at Dragon Skin were often half as deep as the cavities caused in the clay during the Interceptor tests.
5. Dragon Skin performed perfectly, allowing no penetrations, and defeated six rounds of a particularly deadly ammunition threat which US troops in Iraq and Afghanistan may face.

Conclusion

Mr. Chairman, the controversy over the most effective body armor for the US Army has been brewing for a long time and was not started by NBC. NBC, ABC, CBS, The Discovery Channel, The History Channel, and the National Geographic Channel, that I know of, have all either aired programs on this controversy or plan to do so. This does not count the scores of print media sources who have reported on the body armor

controversy. Even "YouTube" has pictures of Dragon Skin body armor testing on the internet, and Wikipedia has posted a carefully documented description of the history of this controversy. Some news organizations have shown successful ballistic tests of Dragon Skin body armor conducted on behalf of other agencies, such as police departments.

In addition, officials with the FBI, the CIA, the US Marshall Services, the GSA, the US Navy, the US Air Force, the Federal Protective Services, the Department of State, the Department of Energy, and the US Coast Guard have all bought or placed orders for Dragon Skin.

So also have private security firms that provide security protection for high ranking officials in Iraq or other dangerous places.

Mr. Chairman, since the original NBC programs aired, the Army has tried to discredit the NBC body armor tests, and to defend the results from the Army tests conducted last year, first in briefings to Members of Congress, then in an open press conference on May 21, and also in briefings to this Committee. The tests conducted by H.P. White for the Army in May 2006, and the NBC tests conducted this year can probably never be compared one for one. Too much time has passed since the tests a year ago, and the Army is overly invested in proving NBC wrong.

The best way to resolve this matter would be for the US Army Test and Evaluation Command to conduct comparable side-by-side tests of both Interceptor and Dragon Skin body armor. Those tests should be overseen by an independent third party such as the Director of Operational Test and Evaluation. This is what the Senate Armed Services Committee has called for, and I hope the House Armed Services will join the Senate to call for a fair, balanced, and refereed body armor testing program.

I would be pleased to take any questions you might have.

United States Government Accountability Office

GAO

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DEFENSE LOGISTICS

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

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

GAO-07-911T

GAO
Accountability-Integrity-Reliability
Highlights
Highlights of GAO-07-911T, a testimony before the Committee on Armed Services

June 5, 2007

DEFENSE LOGISTICS

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

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.

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.

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

[1]U.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.

[2] GAO, *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.

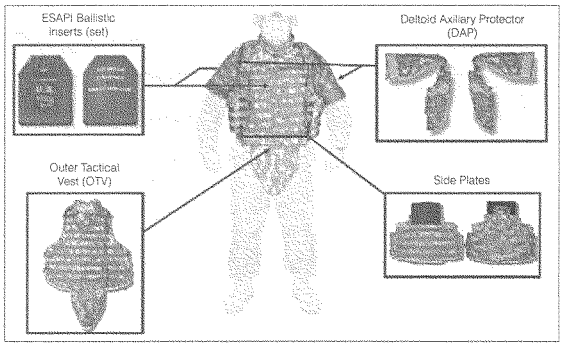
Background

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

[4]Army 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 Army 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

	Army		Marine Corps	
Body Armor Systems	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.

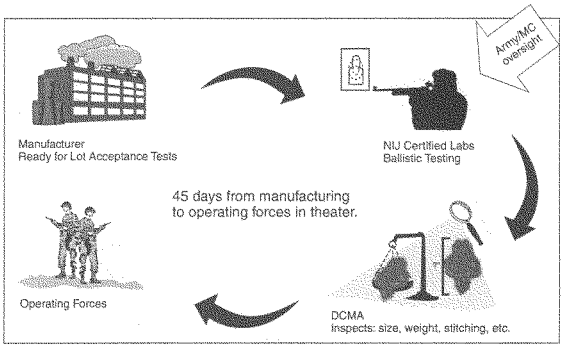
[5]GAO, *Actions Needed to Improve the Availability of Critical Items during Current and Future Operations*, GAO-05-275 (Washington, D.C.: Apr. 8, 2005).

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

[6]The 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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DOCUMENTS SUBMITTED FOR THE RECORD

JUNE 6, 2007

U.S. Department of Justice

Office of Justice Programs

National Institute of Justice

Washington, D.C. 20530

December 20, 2006

Murray Neal
CEO
Pinnacle Armor, Inc.
5425 E. Home Avenue, Suite 104
Fresno, CA 93727

Notice of Compliance with NIJ 2005 Interim Requirements
Body Armor Model: SOV2000.1/MIL3AF01 Level: III
Manufacturer: Pinnacle Armor, Inc.
Warranty Period: 6 Years

Dear Mr. Neal:

We have completed our evaluation of the samples of the body armor model described above ("the Body Armor Model") submitted to NIJ's Voluntary Body Armor Compliance Testing Program. We are pleased to inform you that the Body Armor Model satisfies the requirements of NIJ Standard-0101.04 as incorporated by the *National Institute of Justice (NIJ) 2005 Interim Requirements for Bullet-Resistant Body Armor*.

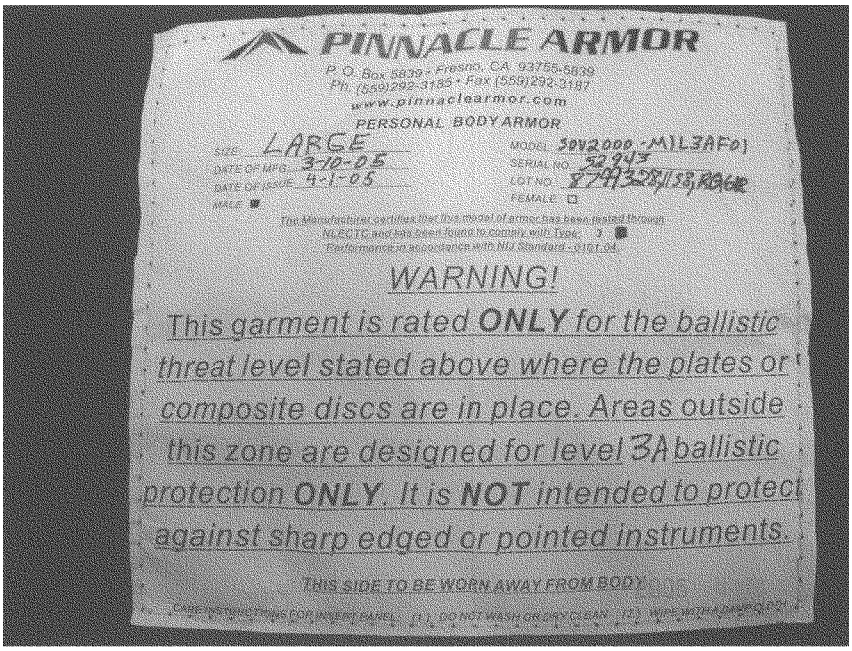
We also have reviewed certain documentation submitted by your company concerning the Body Armor Model. The following documents were received:

- Certification as to materials identified in NIJ Body Armor Standard Advisory Notices (NIJ Form IR-1);
- Certification as to materials of construction of body armor model (NIJ Form IR-2);
- Certification as to labeling of armor (NIJ Form IR-3A);
- Acknowledgment concerning NIJ's recent research findings, the 2005 Interim Requirements, and certain related matters (NIJ Form IR-4); and
- Certification as to maintenance of ballistic performance over declared warranty period (NIJ Form IR-5).

Based on the results of the armor testing and our review of the documents listed above, NIJ has determined that the Body Armor Model complies with the *NIJ 2005 Interim Requirements for Bullet-Resistant Body Armor*. The Body Armor Model will be added to the list of armor models that comply with the NIJ 2005 Interim Requirements made available at www.justnet.org. Information on the declared warranty period will be included in the model listing.

Sincerely,

John Morgan
Assistant Director
Office of Science and Technology
National Institute of Justice



PINNACLE ARMOR

P. O. Box 5839 • Fresno, CA 93755-5839
Ph. (559)292-3183 • Fax (559)292-3187
www.pinnaclearmor.com

PERSONAL BODY ARMOR

SIZE: LARGE
DATE OF MFG.: 3-10-05
DATE OF ISSUE: 4-1-05
MALE ■

MODEL: 3BV2000-M1L3AF01
SERIAL NO.: 52,943
LOT NO.: 5749-328/123, RBGE
FEMALE □

The Manufacturer certifies that this model of armor has been tested through NLECTC and has been found to comply with Type: 3 ■
Performance in accordance with NIJ Standard - 0101.04

WARNING!

This garment is rated **ONLY** for the ballistic threat level stated above where the plates or composite discs are in place. Areas outside this zone are designed for level 3A ballistic protection **ONLY**. It is **NOT** intended to protect against sharp edged or pointed instruments.

THIS SIDE TO BE WORN AWAY FROM BODY

CARE INSTRUCTIONS FOR INNER PANEL: (1) DO NOT WASH OR DRY CLEAN. (2) WIPE WITH A DAMP CLOTH

Pinnacle Armor ("DragonSkin") Submission History

The Office of Justice Programs' National Institute of Justice (NIJ) administers its body armor compliance testing program through the National Law Enforcement and Corrections Technology Center (NLECTC) in Rockville, MD. Scientific research and technical support for the body armor program are performed by the Office of Law Enforcement Standards (OLES) within the Department of Commerce's National Institute of Standards and Technology. The current NIJ standard for body armor with ballistic protection is the 2005 Interim Requirements for Ballistic Resistant Body Armor, which is a revision to the NIJ 0101.04 standard. Information about the NIJ body armor program and related OJP programs can be found at http://www.ojp.usdoj.gov/bvpbasi/.

In May of 2006 NLECTC began to receive inquiries as to whether of not NIJ/NLECTC had tested the Pinnacle Armor "Dragonskin" model of armor. Around this same time, representatives of Pinnacle Armor contacted NLECTC and inquired about the possibility of testing their "Dragonskin" armor to the NIJ standard. NLECTC staff contacted the staff of OLES and began work on what is now known as the Flexible Armor Protocol. This armor protocol was specifically written to test the perceived vulnerabilities to angled shots of Dragonskin and similar armor consisting of multiple or tiled plate systems.

In July of 2006 Pinnacle Armor submitted multiple flexible-hard armor packages for compliance testing using their Dragonskin technology. Pinnacle Armor has submitted a total of seven different models to NLECTC for compliance testing. Two models were resubmitted after inconclusive results, resulting in a total of nine submissions by the company of Dragonskin-based models. The testing results of those seven different models are: five failed to comply with the NIJ standard, one passed NIJ compliance testing and was issued a letter of compliance, two were found to be inconclusive and were not found compliant, and one is pending.

Models that have a test result of Pass are models of armor that completed the compliance testing process with laboratory test results that have been found to comply with the NIJ standard and have successfully completed the NLECTC post-test examination. Failed models of armor are models that did not meet the requirements of the NIJ standard (e.g. penetration or excessive backface signature). Models of armor that fail compliance testing may not reuse the same model designation for future armor submission to the testing program. Models that have been determined to be inconclusive are generally models of armor that have some sort of discrepancy in the armor construction (e.g. one of the test samples has an additional layer of material or is stitched differently from the other samples). Manufacturers with a model of armor that has an inconclusive test result may resubmit that model for testing using the same model designation. Pending armor samples are models of armor that are currently somewhere in the testing process.

Pinnacle Armor has submitted two different armor configurations to NLECTC for threat level III testing. The first configuration is referred to as 'In-conjunction' model of armor. An "in-conjunction" model of armor utilizes an existing IIIA-compliant model and adds a

10 x 12 hard armor plate to it to bring the level of protection up the level III requirements. These two components work together as an armor system and, after successfully completing the NIJ compliance testing process; it is listed on NIJ's list of armor models that comply with the standard as one model. Pinnacle Armor submitted in-conjunction samples that utilize the "Dragonskin" technology in the 10 x 12 plate only.

Below is a graphic illustration how the two configurations are different:

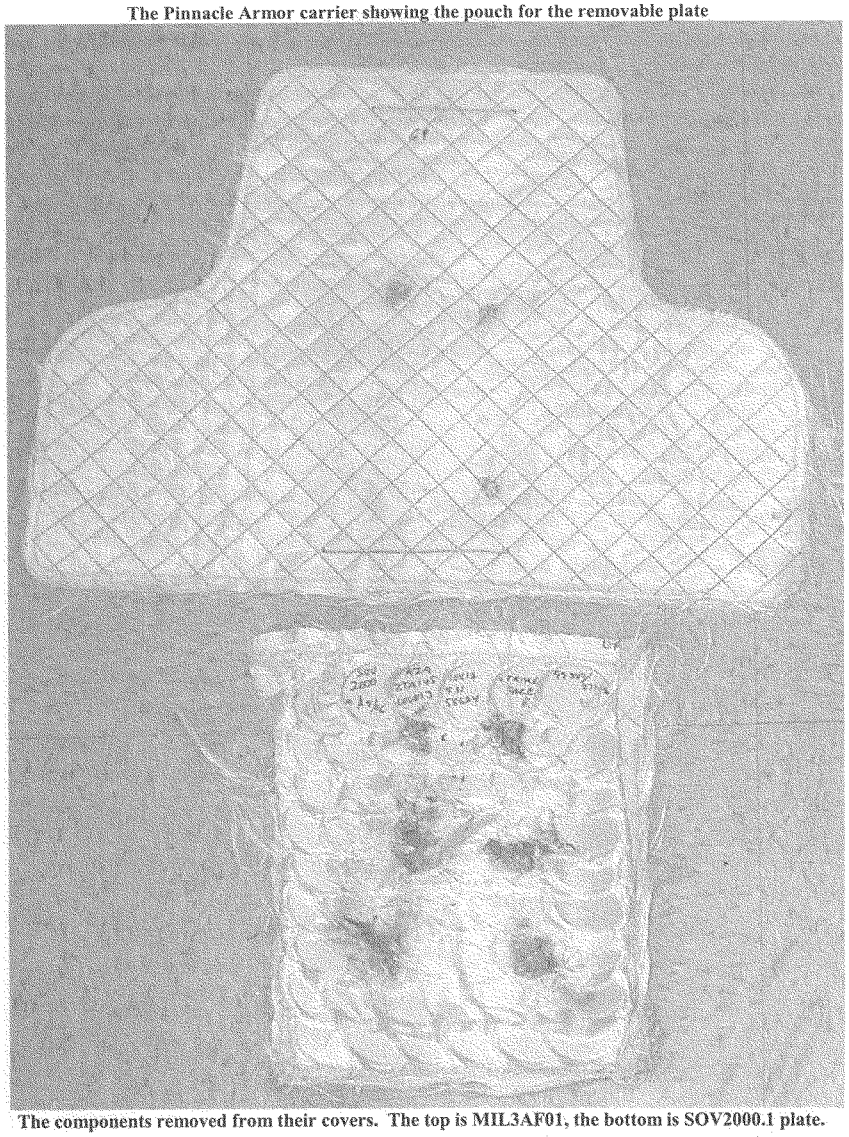
"In-conjunction"

"Complete System"

"IN-CONJUNCTION" Models

The Pinnacle Armor "in-conjunction" models have been submitted using their NIJ compliant model MIL3AF01 level IIIA armor as the base of the system. The 10x12" plate is inserted into a pouch on the carrier strike-face side of the MIL3AF01 carrier. The intended result is to achieve and upgraded level III or IV protection only in the location of the plate.

The Pinnacle Armor carrier showing the pouch for the removable plate



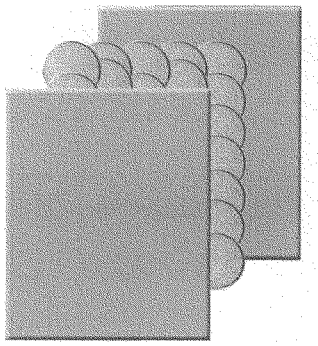
The components removed from their covers. The top is MIL3AF01, the bottom is SOV2000.1 plate.

MIL3AF01

The MIL3AF01 is an NIJ compliant IIIA model without any Dragonskin ceramic plate. It was originally submitted in August 2002, and was issued an NIJ 0101.04 compliance letter on 11/20/2002. The model was submitted for transition to the NIJ 2005 Interim Requirements, approved and was issued a final compliance letter on 9/26/2005.

S0V2000 Plate (Level III)

The "Dragon Skin" plate consists of several components. The most notable are the overlapping ceramic disks. These 2" disks are held in place with adhesive and then sandwiched between 2 layers of Aramid Fabric. This component is then tacked on top of additional ballistic materials (that varies by the plate model). The plate package is then enclosed in a nylon cover. Below is an illustration of how the plate is configured.



S0V3000 Plate (Level IV)

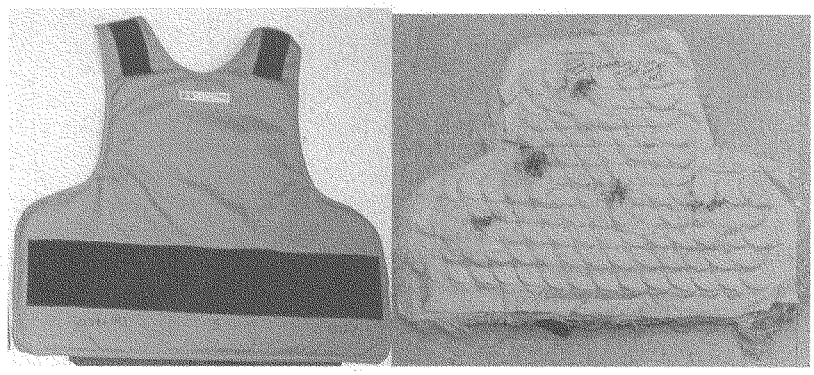
Pinnacle Armor has submitted two models of Dragonskin armor based on the SOV3000 Level IV construction. The construction of the first submitted level IV plate (SOV3000) failed to comply with the NIJ standard. The second submission of the level IV "in-conjunction" system, the SOV3000.1 is currently waiting testing at USTL. According documents provided by Pinnacle, the plate has the same construction as the initially submitted SOV3000 but adds additional layers of aramid material.

"COMPLETE SYSTEMS" Models

The second configuration submitted for level III testing is what NLECTC refers to as the "complete system". The "complete system' utilized the "Dragonskin" technology throughout the armor panel and looks more like a traditional level IIIA vest that provides full front, back and side armor protection for the upper torso. Pinnacle Armor gave this

type of system a model designation that ended in **MIL** (e.g. SOV2000-**MIL** or SOV2000.1/**MIL**).

Below are examples of the "Complete System" type models:



Unlike the "in-conjunction" models, the soft armor and plate components are not distinguishable. Rather they are both contained within the same cover. These models are appear to be similar in construction to models that have been subjected to military testing, though NIJ and its technical partners have not compared the models directly.

The models that have been submitted thus far also contain the base MIL3AF01 model. However in this system, the additional components were tacked directly to the MIL3AF01 materials, and the resulting system was enclosed together. Also, the complete system expanded coverage of the additional materials to the entire surface of the armor.

Chronology of Armor Submissions

Submission #1 (FAILED)
7/20/2006
- Model **SOV2000-MIL3AF01** received, processed, and sent to lab.

7/25/2006
- Model fails ballistic tests at USTL:
  - Sample 2, Shot 1 (30°) penetration

Submission #2 (FAILED)
7/20/2006
- Model **SOV2000-MIL** received, processed, and sent to lab.

7/25/2006

- Model fails ballistic tests at USTL:
  - Sample 3, Shot 1 (45°) penetration

Submission #3 (INCONCLUSIVE)

8/24/2006

- Model **SOV2000.1/MIL3AF01** received, processed, and sent to lab.
  - Two additional layers of woven Aramid fiber are added to plate configuration
  - Base model MIL3AF01 remains unchanged

8/30/2006

- Model passes ballistic tests at USTL, however inconsistencies are discovered:
  - Removable plate 57326 has an extra layer of woven Aramid fiber folded over top of plate
  - Testing is ruled Inconclusive by NLECTC

Submission #4 (INCONCLUSIVE)

8/24/2006

- Model **SOV2000.1/MIL** received, processed, and sent to lab.
  - Two additional layers of woven Aramid fiber are added to configuration

8/30/2006

- Model passes ballistic tests at USTL, however inconsistencies are discovered:
  - Front panel 57324 has an extra layer of woven Aramid fiber folded over top and bottom of panel
  - Testing is ruled Inconclusive by NLECTC

Submission #5 (PASSED)

10/18/2006

- Model **SOV2000.1/MIL3AF01** sent in for re-test. Samples received, processed, and sent to lab.

10/19/2006

- Model passes ballistic tests at USTL
- **Compliance Letter issued on 12-20-2006.** This model is the only NIJ-compliant body armor based on Pinnacle Armor's Dragonskin technology. This the same model that is pictured on pages 2 and 3 of this document.

Submission #6 (FAILED)

10/18/2006

- Model **SOV2000.1/MIL** sent in for re-test. Samples received, processed, and sent to lab.

10/19/2006

- Model fails ballistic tests at USTL

- Sample 1, Shot 1 (0°) penetration.
- Samples are identical to previous submission (attempt #2).

Submission #7 (FAILED)
1/5/2007
- Model **SOV2000.2/MIL** sent in for re-test. Samples received, processed, and sent to lab.

1/23/2007
- Model fails ballistic tests at USTL
  - Sample 1, Shot 6 (0°) penetration.

Submission #8 (FAILED)
4/2/2007
- Model **SOV3000/MIL3AF01** received, processed, and sent to lab.

4/19/2007
- Model fails ballistic tests at USTL:
  - Sample 1, Shot 2 (0°) penetration
  - Sample 2, Shot 2 (30°) penetration
  - Sample 2, Shot 5 (30°) penetration

Submission #9 (PENDING)
5/16/2007
- Model **SOV3000.1/MIL3AF01** received, processed, and sent to lab.
- Samples are pending compliance testing.

8 June 2006

From: Kirk Rice, NIST/OLES
To: Alex Sundstrom, NLECTC-National

Subj: Recommendations for Testing Dragon Skin® Armor

This represents a revision of the May 23, 2006 memorandum that described the latest recommendations for testing Dragon Skin® body armor. This version incorporates additional commentary and clarifications requested from the review of that earlier version. The earlier version contained information below was provided in an email sent on Monday, 15 May 2006, and discussed later that day in a meeting at NIST between Debra Stoe, Lance Miller, and Alex Sundstrom, and then discussed further that day in a conversation between Debra Stoe and Kirk Rice. As a result of those discussions, the May 23, 2006 version included additional recommendations to include more angled shots and more impact angles beyond those that were originally described.

I. Introduction and Rationale for Special Review

Pinnacle Armor has submitted two armor models for compliance testing, but the design of those armor models is different than anything originally anticipated when the standard and compliance testing program were established. Consequently, a special review of this case was triggered to ensure that either the performance requirements, as written, were satisfactory to address the new armor designs, or whether some modified requirements should be recommended.

The primary disparity centers around the assumptions made when the performance requirements and test methods were developed for the NIJ body armor standard (NIJ Standard–0101.04). In particular, the body armor standard assumes that level III and level IV protection will be provided by a single rigid plate. In the case of a traditional tactical-style vest that depends upon a single rigid plate for the high-level protection, the test methods in the standard make sense. Straight impacts are likely to be the most challenging for the armor plate; and for level III, six shots on the plate, as required by the standard, represents a severe test. For single rigid plate armor designs, angled shots are more likely to ricochet off the plate or, if they do begin to penetrate into the surface of the plate, to be less of a penetration hazard compared to a 0° shot. But the unique multiple overlapping plate design of the Dragon Skin® armor introduces another failure mode that is not explicitly accounted for in the standard. The additional failure mode that should be considered concerns the potential for a projectile or fragment to slide between plates. To assess this failure mode, angled shots are necessary; and angled shots are not required for level III or level IV tests under the present version of the body armor standard.

Because of the construction details of Dragon Skin® armor, a bullet approaching from certain directions with some obliquity to the surface of the

armor, rather than "seeing" a smooth plate surface, actually encounters a series of "cliffs" that are formed where one plate overlaps another. A shot directed near the base of one cliff has the potential to slip between the two plates. What happens beyond that is of interest. It may be that the plate overlap lengths are sufficient, or that the plate design will still not allow a penetration, but this particular scenario would be expected in real life and should be considered as part of the compliance testing. Also, the overlapping plate design of the Dragon Skin® armor challenges another assumption of the standard, which is that shot direction generally does not matter.

Traditionally, typical armor designs offer fairly consistent ballistic resistance across their surface. Normal exceptions are shots near an edge, shots placed where the vest shape is such that not much ballistic material is present, angled shots where the shot is angled out toward an edge of the vest, and for a vest strapped on a torso, shots directed at overlaps where one armor panel overlaps another. The standard does not address all of these well, and in most cases, the test methods are designed to avoid them because of variations that might be introduced by edge effects and the backing material. The standard does, however, establish a precedent for challenging perceived weaknesses in a vest's architecture. For female body armor having bust cups that are formed with seams, and for front-opening designs that have overlapping layers of ballistic material, those designs are to be tested with some angled shots directed toward the perceived weaknesses. For the Dragon Skin® armor, shots directed toward an overlapping joint represent an extension of this same logic. Furthermore, a shot directed *into* an overlapping joint—even one located through the central part of the armor, not just near an edge—may be more difficult to stop if the shot is approaching from one direction compared to a shot coming from a different direction, so the orientation of the armor relative to the shot direction is critical.

The normal level III test on traditional plates requires only 12 shots total, which are typically achieved by placing six shots (in a pattern resembling the dots on a "6" domino) on each of two plates, and all of those at 0°. Contrast this to the amount of testing on body armor rated for protection levels I through IIIA, where 24 shots are taken with each of two threat rounds. Taking just one of the threat rounds for discussion purposes (since level III specifies only one threat round also), that threat round would be shot 16 times at 0° and 8 times at 30°.

II. Interpretation of Armor Ballistic Resistance Performance Inferred from Regular NIJ Tests

Understanding how a test protocol influences to what can be said about an armor design is critical. Operating characteristic (OC) curves, which relate the probability of passing an entire penetration-resistance test series to the single shot probability of penetration, help with this understanding. Test series that demand "better" performance lead to an inference that the single-shot probability of penetration is lower, and when considering only this, a smaller single-shot penetration probability is preferred to a larger one. Comparison of OC curves is

an objective method commonly used to assess the discriminating abilities of a test protocol and to characterize "producer's risk" and "consumer's risk."

Probability analysis based on the Poisson distribution was used to develop the OC curves for a number of test scenarios. The analysis indicates that a level I, IIA, II, or IIIA armor model, for one threat caliber, would successfully pass the "no penetrations allowed" part of the NIJ standard at least 50 % of the time if the single-shot penetration probability were no worse than 2.88 %. This analysis makes some simplifying assumptions that each shot is the same and has the same chance of penetrating the armor as any other shot, regardless of shot angle, shot placement, variation in the armor or bullet, etc. The same approach leads to the conclusion that the 24-shot test would be passed at least 95 % of the time if the single-shot penetration probability were no worse than 0.21 %. If one considers that 0° and 30° shots might have different penetration behaviors, and therefore opts to not combine the two types of shots (16 shots at 0° and 8 shots at 30°), the analysis becomes more complicated. In this case, the armor model would successfully pass the "no penetrations allowed at 0°" part of the NIJ standard at least 50 % of the time if the single-shot penetration probability were no worse than 4.33 %, and would pass at least 95 % of the time if the single-shot penetration probability were no worse than 0.32 %. Furthermore, the armor model would pass the "no penetrations allowed at 30°" part of the NIJ standard at least 50 % of the time if the single-shot penetration probability were no worse than 8.66 %, and would pass at least 95 % of the time if the single-shot penetration probability were no worse than 0.64 %.

A similar analysis can be used to show that level III armor would pass the penetration portion of the testing at least 50% of the time if the single-shot penetration probability were no worse than 5.77 %, and would pass at least 95 % of the time if the single-shot penetration probability were no worse than 0.42 % And again, applying the same analysis to level IV armor shows that it would pass the penetration portion of the testing at least 50% of the time if the single-shot penetration probability were no worse than 34.6 %, and would pass at least 95 % of the time if the single-shot penetration probability were no worse than 2.56 % These numbers reveal that marginal armor designs can "get lucky" and pass the test only some of the time. With the present implementation of the body armor compliance testing program, the only time that matters is the first time; and since there is no required follow-on testing, better information about the ability of an armor model to perform reliably from one lot to another is not available. One does not know whether the armor is designed well enough to pass the entire test sequence 95 % of time, 50 % of the time, or some other percentage of the time; consequently, the ability to draw better conclusions about single-shot penetration probabilities is hindered. This illustrates the value of more testing.

Some of the single-shot penetration probabilities are sobering, but they result from a tradeoff between confidence and cost (typical level IV plates are expensive, and if only one shot can be accommodated on the plate because of material properties limitations, additional testing becomes expensive). Ideally

for the consumer, an armor model would be designed well enough to reliably pass the entire test sequence a high percentage of the time, perhaps 95 %, but to assess this with a high level of confidence would require an expanded, and more expensive, test program.

III. Interpretation of How Dragon Skin® Armor could be Tested

Recall that the body armor standard anticipates that one can usually place six shots on a level III armor plate. The Dragon Skin® armor design does not permit this because the plates are too small. One cannot place a single shot on a single plate without violating the edge-to-shot spacing requirement of the standard, so an administrative exception is necessary if this armor design is to be tested at all. In the context of the Dragon Skin® full-vest design (model SOV2000-MIL™), since a large proportion of the vest area is rated for level III protection (i.e., a larger area than would be the case with a traditional 8" x 10" or 10" x 12" single rigid plate design), and the protection is conferred by many—not one—rigid plates, that when fastened together create a fairly flexible but cohesive armor panel, this design begins to more closely resemble the common "concealable" vest rated for level IIIA. As such, we would recommend testing this armor model to *at least* the same level of test stringency as a level IIIA armor model, but to the same level of performance demanded by level III. This has the added benefit of including some angled shots in the assessment because those are part of the normal level IIIA test protocol. Also recall that angled shots were included in the standard test method for the traditional "soft" armor levels (I, IIA, II, and IIIA) because, in some cases, angled shots might be more penetrative than 0° shots. And since angled shots are necessary to properly evaluate the perceived weakness of the Dragon Skin® overlapping plate construction, this general approach is a practical one that is consistent with the spirit of the standard.

The preceding paragraph mentions that the compliance test should be "at least" as stringent as the current level IIIA test. As this matter was discussed further on May 15th, there was an expressed desire to ensure that angled shots would be reliably stopped by these armor models. The 30° angle is in the standard because testing many years ago on *"soft"* body armor models indicated that, in some cases, angled shots might represent a greater challenge to the body armor, and this impact angle is also operationally realistic (i.e., one could readily envision a real-life scenario with this impact angle). While other angles might also pose a serious penetration threat to the armor, 30° was believed to represent a good challenge to the armor design.

When considering testing of the Dragon Skin® armor models, the most significant issues to resolve are not whether angle shots are necessary for the compliance testing program—they are—but what the impact angle(s) should be, and how many shots at each angle are appropriate. Since it is not known what impact angles might be more challenging to the Dragon Skin® design, these test recommendations include an expanded test sequence that includes two additional impact angles (45° and 60°) to supplement the two impact angles (0°

and 30°) described in the standard. The purpose behind the additional impact angles is to thoroughly assess the overlapping plate feature at impact angles that might be more penetrative than the 30° impacts. At the same time, a reasonable level of confidence is desired, which means more shots are necessary, and this influences potential test costs and armor costs.

IV. Proposed Threat Level III Test Protocol for Dragon Skin® Whole-Vest Design

For the SOV2000-MIL™ model, the test approach for level III compliance would be to conduct the compliance in a manner that resembles a test on soft, concealable body armor model. Specifically, place six shots on each body armor panel, where those six shots are arranged in a shot pattern resembling the normal, generally triangular shot pattern defined by the shot template. The traditional total of 24 shots at level III would be made, and 16 of those shots would be fired at 0° and 8 would be fired at 30°. To address concerns that shot directionality may pose a more or less severe threat, the armor should be rotated on the plane of the clay backing material so that the 30° shots are directed into the overlapping joint identified. Depending on the geometry of the plate overlaps, the vest might not be in a "normal" upright position, and it is possible that the shot might be directed outward toward the edge of the vest, again depending on the specific arrangement of overlapping plates. Backface signatures would be measured the same as is currently done for level IIIA testing: shot 1 and on shot 2 or 3, whichever has the greatest velocity.

Up to this point, this general testing approach represents an increased level of test stringency over normal level III tests, but is exactly the same level of test stringency demanded of armor models at level I, IIA, II, and IIIA. With this approach, two complete armor systems would provide the four panels necessary to conduct the penetration-backface series, and one additional armor sample should suffice to conduct the V50 ballistic limit series, and with one spare, a total of four complete armor samples would be needed. In addition to this testing, more armor panels are required to accommodate the angled shots at 45° and 60°. Once again, as was pointed out for the 30° shots, to address concerns that shot directionality may pose a more or less severe threat, the armor should be rotated on the plane of the clay backing material so that the 45° shots and 60° shots are directed into the overlapping joint identified. Depending on the geometry of the plate overlaps, the vest might not be in a "normal" upright position, and it is possible that the shot might be directed outward toward the edge of the vest, again depending on the specific arrangement of overlapping plates. Ideally, eight (8) more shots at each angle would be done so that all non-0° angles are assessed to the same level of test stringency, but it may not be possible to place this many angled shots on a single armor panel without compromising the integrity of the panel too much. If this is the case, then either an additional armor panel is necessary (perhaps the spare is used), or this add-on portion of the test series could be trimmed to only six (6) shots at 45° and six (6) shots at 60°, with some slight decline in confidence and test stringency. These additional tests would require an extra

one or two units of body armor, depending on whether 6 or 8 shots at each of the two additional angles were adopted. Table 1 describes how the front and back armor panels from a total of five (5) units of body armor would be utilized to conduct this entire test series.

Table 1. Armor Panel Utilization

Armor Panel	Shots/Angle*	Notes**
1 front	4/0° and 2/30°	Traditional P-BFS for "soft" armor
1 back	4/0° and 2/30°	Traditional P-BFS for "soft" armor
2 front	4/0° and 2/30°	Traditional P-BFS for "soft" armor
2 back	4/0° and 2/30°	Traditional P-BFS for "soft" armor
3 front	3/45° and 3/60°	Additional angled shots
3 back	3/45° and 3/60°	Additional angled shots
4 front	>10/0°	V50
4 back	>10/0°	V50
5 front		Spare
5 back		Spare

*For all non-zero degree angled impacts, the armor panel shall be rotated on the plane of the clay backing material to whichever orientation will cause the bullet to be directed into the joint(s) created by the overlapping armor plates, with the intention of exploiting perceived vulnerabilities of those joints.
**"P-BFS" is Penetration-Backface Signature. The "additional angled shots" are taken to assess penetration only.

Since there is more area on each armor panel compared to a typical level III plate, a more reliable v50 test should be required. The preferred approach to establish the V50 ballistic limit is to adopt the test method of MIL-STD-662, to require a 10-shot V50 consisting of 5 partials and 5 completes, to require that the test series has a zone of mixed results, and to require that the total range of velocities (that are used in the calculation of V50) does not exceed 125 ft/s. A separate V50 should be determined in this manner for the front panel and the back panel. All shots for the V50 test are fired at 0°.

V. Interpretation of Ballistic Resistance Performance Inferred from Proposed Threat Level III Test Protocol for Dragon Skin® Whole-Vest Design

Once again, OC curves were developed to understand what these recommendations mean in terms of test stringency and single-shot probability inferences. First, a comparison is made based on the number of 0° shots only, since those are the ones expected to be the most important in terms of assessing the traditional penetration failure mode. If the proposed test protocol based on sixteen (16) 0° shots were adopted, the inferences of single shot probabilities are identical to those determined earlier for traditional soft body armor (i.e., the armor model would pass at least 50 % of the time if the single-shot probability were no worse than 4.33 %, and would pass at least 95 % of the time if the single-shot probability were no worse than 0.32 %). For the consumer, this represents a slight improvement over the traditional level III 12-shot series (also described

earlier). The proposed protocol does not require the armor to meet any higher level of ballistic performance than what is already stated in the standard, which is the 147 grain 7.62 x 51 mm M80 NATO steel-jacketed round, although one gains some slight improvement in confidence because test stringency is increased (the armor must successfully defeat the same threat round more times). The added benefit of this approach is that it requires angled impacts, which will provide an opportunity to assess performance vis-à-vis the additional failure mode mentioned earlier (i.e., bullet slipping between plates). Ideally, these angled shots would be placed at the "base of the cliff's edge" if this is knowable to the test laboratory.

This analysis is now extended to consider angled shots. Without knowing whether angled shots pose the same or different penetration risk than 0° shots, one is again challenged to decide how to treat angled shots that might possess fundamentally different penetration behavior compared to the 0° shots. To simplify the analysis, it will be assumed that all non-zero angled shots can be considered together, that all angled shots have the potential to slip between the overlapping plates, and that all angled shots can be used to exploit the perceived vulnerability in the armor design. As such, the proposed test protocol has a total of 20 angled shots (8 shots at 30°, 6 shots at 45°, and 6 shots at 60°). From this, one can infer that an armor model that passes (i.e., no penetrations on the angled shots) the entire angled-shot test sequence at least 50 % of the time has a single-shot probability no worse than 3.46 %, and would pass at least 95 % of the time if the single-shot probability were no worse than 0.25 %). For the consumer, this represents a large improvement over what would normally be done for traditional soft body armor models, which are tested only 8 times at 30 °, and it subjects the armor to approximately the same level of test stringency for angled shots (total of 20) and straight-on 0° shots (total of 16).

VI. Proposed Threat Level IV Test Protocol for Dragon Skin® Whole-Vest Design

If this same model (SOV2000-MIL™), or a similar one, were submitted for level IV testing, we would recommend the same approach as described for level III testing: 36 shots total, with 24 of those shots resembling the traditional soft armor test (6 shots on each of 4 armor panels, where the 6 shots follow the nominally triangular shot template, and for each 6 shot group, 4 of them are at 0° and 2 of them are at 30°), and the remaining 12 shots fired at additional angles (3 shots on each of 2 armor panels at both 45° and 60°). And again, all non-zero angled shots would be fired with the armor rotated on the clay surface in an attempt to exploit the gap between overlapping plates. The Dragon Skin® armor design should accommodate this much testing without requiring an extraordinary number of test samples. Consistent with the description of the level III tests, five complete armor samples would be needed.

VII. Discussion Regarding Dragon Skin® Flexible Plates

The last item to consider is how to treat the 10" x 12" Dragon Skin® plate, which is intended to confer a high-level of protection to a soft body armor model. The soft armor model is designated MIL3AF01. Pinnacle Armor model MIL3AF01 (female) was submitted to NLECTC for voluntary compliance testing in accordance with NIJ Standard–0101.04 in October of 2002. It was tested at H.P. White Laboratory and found to comply with Type IIIA protection. Subsequently, in September 2005, the manufacturer submitted the necessary IR forms in accordance with the Transitional Provisions of the NIJ 2005 Interim Requirements, and this model is currently on the list of complying models. It is our understanding that the body armor manufacturer intends to offer the 10" x 12" Dragon Skin® flexible plate, called the "SOV2000™", as an optional component that could be used with the MIL3AF01 vest. Here is where the issues become cloudier.

Traditionally, if a manufacturer did not rely on the soft armor behind the plate in order to meet the performance requirements, then testing proceeded on the plate only—no soft armor was involved. And since all shots on the plate are at 0°, there is less potential for ricochets, or if there are ricochets, the deflected and ejected materials move in a direction away from the clay backing material. Even for curved plate tests, the curvatures are not substantial enough to cause the bullet or debris to be deflected toward the backing material. A related issue has been raised occasionally concerning the potential for ricochets to be deflected into the chin or face of the user, or any other unprotected body part that might be slightly forward of the surface of the armor plate. While injuries through this mechanism remain a possibility, the standard does not impose any requirement to control this aspect of armor performance. But the construction details of Dragon Skin® armor challenge a basic assumption that ricocheting materials will be directed away from (i.e., forward of) the armor surface. Already stated is the position that the overlapping plate construction of Dragon Skin® armor justifies the necessity for angled shots. But angled shots also increase the likelihood of ricochets. Whether this really happens is unknown, but if a bullet does slip between two plates, it is conceivable that when it emerges, it might be deflected in a direction *toward* the backing material, not necessarily *away* from it. This might be the case if the bullet emerges from between the plates after contacting the underside of a top plate. So the question may arise, "What constitutes a penetration?" Our view would be that any deflection directly caused by the plate that results in the projectile, fragments of the projectile, or non-textile fragments of the armor in the clay backing material, or evidence that this has occurred, should be considered a failure due to penetration.

If the Dragon Skin® plate is tested alone, *and if this type of ricochet occurs*, a failure is almost certain. To reduce the likelihood of this possibility, the manufacturer may wish to test the plate in combination with the soft armor system, but this has other labeling and marketing implications. With the combination of the two, if this type of ricochet occurs, the soft armor may help to prevent penetration (or the occurrence of a bullet or fragment from entering the clay backing material). It may well be that this type of failure mechanism is not

an issue, no matter how the test is conducted, but that depends on how the plates are overlapped. To obtain an early indication of whether this failure mechanism is an issue, and perhaps to provide guidance on how the test the Dragon Skin® 10" x 12" flexible plate, the first test of the Dragon Skin® armor system should be on the SOV2000-MIL™ design. Careful examination of the bullet paths into the armor system should provide insight into whether similar tests done on only the 10" x 12" flexible plate will be problematic. The manufacturer is responsible for deciding if the 10" x 12" flexible plate should be tested alone or with other soft armor behind it, but running the tests in the order described should yield important information that would factor into the decision. There are significant advantages to having proof of compliance for a stand-alone plate, so that would probably be the manufacturer's preferred option.

VIII. Proposed Threat Level III Test Protocol for Dragon Skin® Flexible Plates

Regarding the specific conditions under which the flexible plates should be tested, the following recommendations are proposed. A normal level III test on traditional plates requires only 12 shots total, and all are at 0°. For Dragon Skin® flexible plates, we would recommend testing additional 10" x 12" flexible plates at non-zero shot angles to a similar level of test stringency. The rationale for this exactly parallels that for the whole vest design, where the recommended test protocol includes 16 shots at 0°, and 20 shots at non-zero angles (8 at 30°, 6 at 45°, and 6 at 60°). So for the flexible plates, after the 12-shot series at 0° is completed, additional plates should be tested with impact angles of 30°, 45°, and 60°. To achieve the same level of test stringency, the total number of non-zero angled shots must also be 12, and with three non-zero shot angles, 4 shots should be taken at each angle. This is best accomplished by taking two shots at each non-zero angle on each of two different flexible plates, as shown in Table 2. And consistent with the desire to challenge perceived potential vulnerabilities in the armor design, all non-zero angled shots would be fired with the flexible armor plate rotated on the clay surface so that the bullet is directed into the overlapping gap.

Table 2. Flexible Plate Utilization

Plate	Shots/Angle*	Notes**
1	6/0°	Traditional P-BFS for "soft" armor
2	6/0°	Traditional P-BFS for "soft" armor
3	2/30°, 2/45°, and 2/60°	Additional angled shots
4	2/30°, 2/45°, and 2/60°	Additional angled shots
5	6/0°	V50
6	6/0°	V50
7		Spare

*For all non-zero degree angled impacts, the flexible plate shall be rotated on the plane of the clay backing material to whichever orientation will cause the bullet to be directed into the joint(s) created by the overlapping armor plates, with the intention of exploiting perceived vulnerabilities of those joints.

***"P-BFS" is Penetration-Backface Signature. The "additional angled shots" are taken to assess penetration only.

Shot placements on the flexible plates should resemble the tradition "6" domino arrangement; however, some variation may be necessary to ensure that certain angled shots strike overlapping joints, while honoring the shot-to-edge distance and shot-to-shot distance requirements in the standard.

In addition to the P-BFS test, the V50 ballistic limit of the Dragon Skin® flexible plate shall be determined. Consistent with NIJ Standard–0101.04, the recommendation is to determine the V50 ballistic limit using the test method described in MIL–STD–662, except instead of relying on a 6-shot V50, an attempt should be made to conduct at least a 10-shot V50 (5 partials and 5 completes) by testing at least 2 flexible plates with 6 shots each, for a total of 12-shots. As described earlier for the proposed Level III test protocol, the test series should have a zone of mixed results and the total range of velocities (that are used in the calculation of V50) should not exceed 125 ft/s. All shots for the V50 test are fired at 0°.

A spare flexible plate is necessary should test problems be encountered, so a total of seven (7) flexible plates are required.

IX. Proposed Threat Level IV Test Protocol for Dragon Skin® Whole-Vest Design

If this same flexible plate design, or a similar one, were submitted for level IV testing, we would recommend the same approach as described for level III testing.

X. Other Testing Considerations that Apply to All Dragon Skin® Armor Tests

Another practical matter that might develop during testing concerns the weight of the armor. If the standard elastic straps cannot adequately restrain the armor against the clay backing material without slippage, then additional straps should be attached to the topmost edge of the armor (which will depend on the armor orientation). The opposite end of these supplemental straps should then be stretched over the top of the clay backing material container and affixed.

Since the overlapping plate construction of Dragon Skin® armor models requires additional testing and some assessment of which shot directions would best challenge perceived vulnerabilities in the design, NLECTC should determine, based on an examination of the armor panels/plates and knowledge of the construction details, what the appropriate shot location, shot angle, and armor orientation would be for every shot. NIST/OLES could assist with this activity. A further condition must be made to the shot angles: there is some concern that the more extreme angle (in this case, 60°) might be too oblique to represent a significant challenge to the overlapping joint. If this proves to be the case, NIJ should retain the right to adjust this angle to another that is believed to represent

a substantially challenging, but highly oblique, angle. Pinnacle Armor reports that they have tested up to 53°, so further discussions and assessments may lead to revisions in the most oblique shot angle.

There may be some difficulties in obtaining meaningful V50 tests because of the anisotropic nature of the Dragon Skin® armor design. Some bullet impacts may occur near armor plate edges while others may be located nearer the center; and some bullets may strike in locations on the surface of the armor where, because of the overlapping and stacked plate design, the effective thickness of the body armor varies by one plate thickness.

XI. Summary

The recommended test protocols described here for Dragon Skin® armor models are completely consistent with the spirit intended by the standard. The test methods represent what should be a reasonable test to assess the additional potential vulnerabilities with this design without being unfairly stringent. This case, as well as others, indicates the need to incorporate additional language into either the standard or the certification program manual that provides the flexibility to adapt the test methods to address atypical designs.

Enclosure - a

Background

While President of Point Blank Body Armor (PBBA) in 1996, I led the PBBA design team that competed for and was awarded a contract by the US Army-Natick to design a new body armor system to replace the PASGT Flak Vest, the current issue to the US Armed Forces at the time. The design and development period took almost two years and led to PBBA's first production contract for the Modular Body Armor (MBA), the original developmental name for what became the Interceptor™, and was grouped by the Army with the concurrent development of a soldier's load bearing system to ensure compatibility.

During this design and development period, from the preliminary MBA design to the final design for the production model, I served as the MBA Integrated Program Team Leader (IPT Leader), the key position in the prime contractor's Arthur D. Little, Inc.'s (ADL) integrated MBA/MLS (Modular Load Bearing System) design team for the MBA. I led the design and development of the MBA on a team of seven people, one of which was a Government representative, an apparel developer from US Army-Natick.

The MBA included both the soft body armor vest (with collar and groin protectors), and the hard armor, rifle bullet resistant, plates. PBBA provided numerous vest design iterations to meet Army and Marine Corps changing requirements, and SIMULA, Inc. provided the hard armor plate designs to meet Army-Natick specifications.

Once PBBA was awarded the first production contract for MBA, I disaffiliated myself from PBBA, and assumed the presidency of another protective apparel company, but outside of the ballistic vest industry. I have since been the president of two other body armor companies in North America, ArmorShield, Inc. and Select Armor, Inc.

The issue at hand for the HASC relates to the superiority of Interceptor™ and a competitor, Dragon Skin™. While I have no relationship of any kind with Pinnacle Body Armor, the maker of Dragon Skin™, I believe that their technology is two generations ahead of the ten year-old Interceptor™ vest's technology, and would provide superior protection for American troops.

Enclosure – b.

Selection of Interceptor™ and ESAPI for Test

My motivation, when asked to offer my opinions as a developer of the Interceptor™, was to provide my opinion that a body armor technology is available that I believe is two generations ahead of anything I had ever seen, and is superior to the 10 yr old technology we built into the Interceptor™. My history as the lead developer of the Interceptor™ is well known to those in the body armor industry, or know PBBA's and Arthur D. Little's (the prime contractor in the development of the vest for US Army-Natick and MARCORSYSCOM) history in this endeavor, or have access to the Modular Body Armor (MBA - the original name for Interceptor™) records at PM Soldier or Natick.

The soft body armor Interceptor™ vest and the ESAPI plates were made by Protective Products International, (PPI) in Sunrise, Florida. Why did I pick PPI? Because I didn't want to be given (sold actually) "specially made for a test" vest and plates; I wanted a vest and plates off a production line from a company with military contracts; and, from a company which I trusted for their Quality Control to make a vest and plates that met the MilSpecs. The Interceptor™ and the ESAPI plates were brand new. In fact, the ESAPI was from a lot that was en route to the Marines with their new MTV vest (Interceptor's replacement for the Marines. The NBC News sponsored side-by-side tests were done at an internationally renowned government lab in Germany because the Army told HP White and US Test Labs (as well as the Canadian lab) not to allow NBC News to conduct these tests, or "there would be repercussions."

The test protocols were NIJ's protocols, the certifier of body armor for the USA. Tests were conducted at a 30 degree oblique, as well as front-on, but those did not make the NBC News video coverage. The 30 degree oblique shot results were the same as the front-on: no penetrations and minimal back face deformation. The same results as the Interceptor™ with ESAPI.

In my opinion, a curved surface, replicating a human torso, would have shown Dragon Skin™ to be superior as it is able to be body contoured. ESAPI plates are rigid, and are not as conformable. But, to avoid being accused of unfairly loading the tests in Dragon Skin's™ favor, the lab stuck strictly with the NIJ protocols.

- The rounds tested were the Army's recommended test rounds, plus what the Army calls "emerging threat" rounds.
- Also fired were "emerging threat" rounds that have a hardened tungsten core at 3000 fps. The results were the faster the bullet, the less damage was inflicted on Dragon Skin™.
- The tests results show that the Interceptor with ESAPI performed very well; well above all Army requirements.
- Dragon Skin just did better.

Enclosure-c.

Suggested Next Steps for HASC

The HASC should hear the Army representatives and Pinnacle's representatives make their cases.

Then----the HASC should direct that the Army fund an independently conducted test at an impartial third party ballistic laboratory of a Dragon Skin™ vest at a comparable NIJ Level of protection to the Interceptor™ with ESAPI plates.

The test would be conducted against Army provided standards, and the results witnessed by impartial third party observer experts. The results would be published to the HASC, only, for further release of the test results as the HASC determines.

Enclosure-d.

Curriculum Vitae - James G. Magee

Mr. Magee is a recognized expert on personnel protection systems and has been the president of three industry leading body armor manufacturers, Select Armor, Inc., ArmorShield, Inc. and Point Blank Body Armor, Inc. during the past decade. He was the principal designer of the US Army's *Interceptor*™ vest, the current generation of body armor worn by US Armed Forces personnel today. Perhaps Mr. Magee's most recognized achievement in the body armor field is that he brought Point Blank to a position of industry leader from Chapter 7 Bankruptcy in less than 12 months. After leaving Point Blank, Mr. Magee managed the Modular Body Armor program for the US Army's Prime Contractor for MBA, Arthur D. Little, Inc. During his presidency of Armorshield USA, Mr. Magee opened their Pennsylvania production facility, vastly expanded their US marketing, and won significant US military contracts for that firm. For Select Armor, Mr. Magee leads the company and specializes in optimizing our client's investment in personnel protection technologies and military training. He is an experienced and recognized subject matter expert for tailoring integrated body armor and load bearing solutions for military and law enforcement optimizing their investments through effectiveness enhancement, TCO reduction, and component enhancing ballistics protection integration solutions. He is a consultant to *NBC News* on body armor issues, and has been published in *Armed Forces Journal*, the *Marine Corps Gazette* and the *Washington Post* on this and other military issues.

Prior to joining Select Armor, Mr. Magee was the President of HIPERTEX, Inc, a manufacturer of high output lightweight diesel engines for DARPA. He has served as the Vice President – Global Performance Solutions for META Group. In this capacity he established META's Worldwide Solutions Practice and assisted global government and commercial clients by developing unique solutions to address client's often complex business challenges. Mr. Magee has significant business and personal protection experience prior to joining META Group. He led GartnerGroup's Performance Management Practice for the Eastern half of the USA for five years. At Gartner, Mr. Magee was the global leader in providing efficiency, effectiveness, cost and performance solutions for Fortune 1000 commercial clients as well as major Federal and state government agencies and clients

Mr. Magee has been a senior operations analyst with Kapos Associates, Inc. (KAI, now part of L3Comm). His clients included The White House, the National Security Council (NSC), and The Atlanta Olympics, the federal departments of Defense, Army, Navy, and Treasury. While at KAI, Mr. Magee led teams that assessed the interoperability for the NSC including the command, control, computers and intelligence systems for the Atlanta Olympics, the Joint Chiefs of Staff, as well as the C4I3 of all of the military regional combatant commanders and their special operations components around the globe.

He served a full career in the Marines, retiring as a highly decorated infantry Colonel in the early 1990's after service as the Marine's special operations expert, and commander of the largest anti-terrorist organization in DOD, the Marine Corps Security Forces with 3400 Marines and Sailors at 82 sites in 16 countries.

Mr. Magee sits on the board of directors of two corporations in the national security arena, Select Armor, Inc. and Archangel LLC. He was the 2002 recipient of the *National Defense Industrial Association's (NDIA) Lifetime Achievement Award* for his contributions to the Nation's ability to wage special operations. Mr. Magee lives in the suburbs of Atlanta, GA with his wife, Carole. They have three grown children.

Education:
MBA Studies: Georgia State University, Atlanta, Georgia
MA Equivalent: NATO Defense College, Rome, Italy
BS: Virginia Tech, Blacksburg, Virginia

QUESTIONS AND ANSWERS SUBMITTED FOR THE RECORD

JUNE 6, 2007

QUESTIONS SUBMITTED BY MR. SKELTON

The CHAIRMAN. The Army indicates you personally observed each test conducted on Dragon Skin in May of 2006. Do you agree with this statement?

i. In your opinion, did the Army's tests from May of 2006 violate testing protocol? In what way and did you raise your issues during the tests? If not, why not?

Mr. NEAL. Yes. Yes the testing conducted by the Army did violate testing protocol.

On the first day I did start out in disagreement when both Karl Masters the Test Director and James Zheng from Natick, who was conducting the tests could not even define a "Hard Edge" to the flexible system, and could not understand the overlap configurations or how to define the areal densities of the flexible armor system.

On the second day I did complain about James Zheng taking R&D shots and deviating from the test protocol and procedures, especially by shooting into an area that did not have rifle defeating discs in place and then shooting discs by themselves. That was the time when James and Karl began a heated argument on the testing procedures and the Karl threw down his clipboard and told James Zheng that he would be responsible for the testing that he was conducting and walked out of the range. I also complained about not being able to view all of the events such as the post x-rays, etc.

The CHAIRMAN. When and how did Pinnacle receive notice of compliance with NIJ Level 3 performance for SOV2000.1/MIL3AF01?

Mr. NEAL. That was received via Email on December 20, 2006 three months after passing the ballistic testing on September 19, 2006. The first test to validate the protocol and procedures, shot requirements and obliquity shots for the NIJ to adopt a flexible armor system protocol did not even take place until August 3, 2006. Please see documents #3, 4, & 5. [The information referred to is retained in the committee files and can be viewed upon request.]

The CHAIRMAN. When did Pinnacle Armor first contact NIJ about submitting any Dragon Skin product for Level III or Level IV compliance testing?

Mr. NEAL. I started this process for a flexible rifle certification with NIJ back in February of 2002.

The CHAIRMAN. NIJ revised its Level III and Level IV testing protocols to test for the unique failure modes that are possible with flexible armor systems such as Dragon Skin, which are composed of overlapping ceramic disks. Do you think that these revisions were reasonable?

Mr. NEAL. Yes, as it will fit multiple designs for various overlap conditions.

The CHAIRMAN. Has any Dragon Skin product been tested for compliance with the NIJ level 4 performance? Did any pass?

Mr. NEAL. No, not yet. We are preparing for the side-by-side FAT test first and foremost, as you had requested during the hearing.

The CHAIRMAN. Have you made any improvements to the Dragon Skin SOV level 3000 vest since the Army's tests from May of 2006? If so, what were they and did you notify the Army of these improvements?

Mr. NEAL. We improved the QC process for us as well as the adhesive laminator on the application process of the adhesives to the aramid textiles to preclude a gap in the adhesive. As I testified they now produce a 1″/25mm overlap at the joint rather than a butt joint. Additionally, they mark the joint locations on each side of the roll for easy visual inspection as the material is rolled off of the main roll. Yes, the Army was notified of the changes that were decided on by the laminating company and myself before the end of the test. I told Karl Masters the Test Director, personally.

The CHAIRMAN. If another round of comprehensive first article tests were mandated how quickly could you provide the necessary 30 test articles?

Mr. NEAL. We are currently manufacturing the vests and they will be ready by the first week of August 2007.

The CHAIRMAN. Has Pinnacle chosen to compete in any of the Army's recent competitions or solicitations for body armor? If not, why?

Mr. NEAL. Yes. You will also see in the documents package provided at the hearing six from the last year that we attempted to compete in, despite the allegations of the Army.

[The information referred to is retained in the committee files and can be viewed upon request.]

The CHAIRMAN. Please detail for the committee your concerns of the Army's May 06 tests? For example do you believe they calculated the comparison of areal density accurately?

Mr. NEAL. No. The Army did not calculate it correctly at all. I tried to explain this during the hearing but it seemed as if no one tried to understand the differences. In fact, he weight vs.ballistic performance are so light that the Army classified it "SECRET" due to its mass efficiency as per the Security Classification Guide at the U.S. Army Research Laboratory.

The document package from the hearing also has the data to refute it. The XL vest that the Army showed you had 5.6 square feet of rifle defeating coverage. The Interceptor that they showed had 2.8 square feet of rifle defeating coverage. That is not an "apples-to-apples" comparison. The Dragon Skin® vest had twice the amount of rifle defeating coverage. If you double the weight of the Army's 28 pound vest you will then see the real difference. By the way, the actual weights of every vest as weighed and written down by the Army is also in the documents package. You can validate the weights by the serial number on the vest. It weighs less than what the scale showed, and that is their document.

The additional concerns were the R&D shoots taken during the FAT test. This was to be a First Article test and the protocols and procedures should not have been deviated from. They could have conducted their R&D subsequent to the testing, to help them understand the system.

[The information referred to is retained in the committee files and can be viewed upon request.]

The CHAIRMAN. Why does it appear that there are varying results of Dragon Skin (Flexible Body Armor) when tested at different facilities?

Mr. NEAL. That is a concern not only of our company but others as well. The only place and testing control where the Dragon Skin® seems to fail is where the FAT test was conducted, and under the Army's testing control. We have tested it for numerous federal, state and local agencies with them doing the testing without failures.

For the record, I do have a 620+ page classified "SECRET" report that validates the data on the level 4 and 5 Dragon Skin® body armor system, if you have someone with the clearance capability to receive it. It proves what I attempted to explain about the holes in the clay and the x-rays discrepancies that the Army told to Mr. Duncan Hunter and specifically defines the flexible armor and it attributes, especially its capabilities to defeat IED threats, substantially higher than the current armor systems issued today. All of the testing was conducted at the U.S. Army Test Laboratory and ATC in Aberdeen Maryland.

The CHAIRMAN. Did you personally observe the NBC News ballistic tests conducted in Germany? How did the tests in Germany compare to the tests that you observed at HP White test facility? What test protocol was followed for the tests conducted in Germany?

Mr. NEAL. Yes, I personally attended and hand carried the body armor to be tested. The tests were extremely strict and a substantial amount of precedence was set to insure that no deviations or deviation from the protocol would happen, as they were video recorded the entire time by multiple camera personnel.

The projectiles shot and their velocities were from the ESAPI specification except the level 5 rounds that are not covered by that specification, which are much more difficult to stop. The total number of shots was set to the NIJ requirement of 6 rounds. The first three shots were to the ESAPI spacing requirements.

The CHAIRMAN. Was the model of Dragon Skin vest used by NBC News the same model used by the Army in May of 2006? Describe any differences such as weight, area of rifle-defeating armor coverage, level of protection, and configuration.

Mr. NEAL. Yes. The only difference was that I supplied a 10″x12″ dimensioned panel to be the same size as the 10″x12″ ESAPI green colored plates that were provided by Mr. Magee.

The CHAIRMAN. Please describe your involvement and timeline with the NBC testing of Dragon skin. Did NBC contact you?

Mr. NEAL. My involvement with NBC was for them to interview me regarding the Dragon Skin® body armor, how well it defeats the threats and to provide a vest to do a side-by-side limited test. Yes, they contacted me.

The CHAIRMAN. Why do you think NBC chose to use a German test facility instead of one of the two NIJ certified laboratories here in the United States?

Mr. NEAL. I do not know that information. You would have to ask NBC that.

The CHAIRMAN. The Army indicates an SOV 3000 vest size XL weighs 47.5 lbs. Do you agree with this statement?

Mr. NEAL. No absolutely not. I tried to explain this during the hearing but it seemed as if no one tried to understand the differences. The weight vs. ballistic performance are so light that the Army classified it "SECRET" due to its mass efficiency as per the Security Classification Guide.

The document package from the hearing also has the data to refute it. The XL vest that the Army showed you had 5.6 square feet of rifle coverage. The Interceptor that they showed had 2.8 square feet of coverage. That is not an "apples-to-apples" comparison. The Dragon Skin® vest had twice the amount of rifle defeating coverage. If you double the weight of the Army's 28 pound vest you will then see the real difference. By the way, the actual weights of every vest as weighed and written down by the Army is also in the documents package. You can validate the weights by the serial number on the vest. It weighs less than what the scale showed, and that is their document.

That is only part of the issue. The Dragon Skin® body armor system can vary in weights depending upon the amount of rifle defeating coverage a user wants. That is the great element, in that this is the first body armor system available for the military that can truly be tailored for mission specific requirements and fit both male and females to the 97 percentile, these capabilities cannot be done with current plated body armor technologies.

The CHAIRMAN. The Army also indicates an SOV 3000 vest size XL is comparable to an IBA ESAPI size large. Do you agree with this comparison?

Mr. NEAL. No, I do not. Again, you have no way of knowing what coverage option of the Dragon Skin® body armor that could be compared. Just as there are various sizes of vests the Dragon Skins® flexible body armor provides numerous high powered rifle defeating coverage options for each size of vest.

The CHAIRMAN. The Air Force stated it is pursuing debarment action against your company. Have you been notified of this action? Do you plan to appeal if the Air Force debarment action is approved?

Mr. NEAL. We have been officially notified as of July 5, 2007. Yes.

The CHAIRMAN. How many Department of Defense (DOD) body armor contracts has your company been awarded since 2001? How many Dragon Skin vests were sold to DOD organizations and/or other government agencies (not individuals in DOD) under those contracts? Are you presently under contract with DOD for body armor? Would you require relief from those contracts in order to provide the necessary 30 test articles for another round of performance tests?

Mr. NEAL. [The information referred to was not available at the time of printing.]

The CHAIRMAN. If the Army were to conduct another round of first article tests how would you prefer to see those tests carried out?

Mr. NEAL. I would like to see an independent third party test as you have requested (side-by-side) for the First Article Test (FAT) with OSD and DOT&E oversight. This could be conducted at ATC as they have those oversight personnel currently in place and the equipment to conduct the testing. I would like to attend as an observer only. This should be conducted without any direct control of the Army and only by the ATC personnel. When the testing is completed you will see that the Dragon Skin® body armor system is truly ready for use within the military, and provides substantial trauma reduction in addition to the other 9 attributes of the system. Please see Document #6.

[The information referred to is retained in the committee files and can be viewed upon request.]

The CHAIRMAN. Do you feel the body armor your service is procuring to meet your operational requirements is the best available? Why? How did you reach that decision?

General THOMPSON and General BROWN. Yes, the body armor provided to Soldiers today meets operational requirements and is proven both in rigorous testing and in combat to be the best body armor in the world. Since the inception of the U.S. Army's Body Armor program, the commercial marketplace has been afforded the opportunity, through full and open competition, to demonstrate their body armor products to the U.S. Army. Extensive testing of all body armor products provided to the Army has shown there is nothing more effective on the market today than the Army's Interceptor Body Armor.

The CHAIRMAN. What is your opinion of the body armor test and evaluation procedures utilized today? What assurances can you give that they are open, fair, and effective?

General THOMPSON and General BROWN. All body armor testing is conducted at an independent National Institute of Justice (NIJ) certified ballistic laboratory to

ensure there is no perception of bias in evaluation. NIJ laboratories follow stringent ballistic test guidelines that are recognized throughout the body armor industry and the government as fair and effective. Additionally on April 26, 2007 the Government Accountability Office published their report titled, *"Defense Logistics: Army and Marine Corps's Individual Body Armor System Issues,"* which stated that "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."

The CHAIRMAN. What is your service's current safety of use policy with regard to operationally deployed forces using non-mil-spec, privately procured body armor? When did you make this decision? a. Please explain the rationale behind this decision?

General THOMPSON and General BROWN. The U.S. Army has a current Safety of Use Message (SOUM) dated March 17, 2006 specifying that Soldiers are only authorized to wear Interceptor Body Armor (IBA). The rationale for the SOUM is based on a series of tests conducted on commercial body armor that failed to meet U.S. Army ballistic and weight requirements. Therefore, the decision to publish the SOUM was to inform Soldiers that commercial body armor products, not certified by the U.S. Army, are unsafe and could cause death or serious injury.

The CHAIRMAN. What are your body armor requirements? When do you expect to meet these requirements?

General THOMPSON and General BROWN. Current requirements are for 966,000 sets of IBA. The Army expects to meet the requirement for Enhanced/Small Arms Protective Inserts by September 2008.

The CHAIRMAN. Please list all the qualified vendors that supply your service with body armor, by body armor component, to your branch of service.

General THOMPSON and General BROWN. U.S. Army Body Armor Suppliers:

Improved Outer Tactical Vest (IOTV) & Deltoid Axillary Protector (DAP)

Point Blank Body Armor (Deerfield Beach, FL)
Specialty Defense Systems (Dunmore, PA)

Enhanced Small Arms Protective Insert (ESAPI)

Ceradyne (Costa Mesa, CA)
BAE (Formally CERCOM - Vista, CA)
Simula (Phoenix, AZ)
Armor Works (Tempe, AZ)
Protective Materials (Miami Lakes, FL)
Armacell - (Camarillo, CA)

Enhanced Side Ballistic Inserts

Ceradyne (Costa Mesa, CA)
Armor Works (Tempe, AZ)

The CHAIRMAN. How critical is the weight requirement for the overall body armor system?

General THOMPSON and General BROWN. The entire IBA ensemble weighs 31 pounds for size medium. The weight requirement is absolutely critical to the overall body armor requirement. The current weight of a Core Soldier today is approximately 75 pounds. Doctrinally, a Core Soldier weight should be less then 60 pounds. The Soldier's load, both weight and cube, must not degrade the mobility of the dismounted Soldier and the momentum of small unit operations in close combat in close, complex terrain. The dismounted Soldier will maneuver through upper floor windows, underground sewers, holes in walls, over walls, and over rubble in all environments. He will have to roll left and right and then sprint three to five seconds through varied terrain to the next covered and concealed position while under hostile enemy fire. The Soldier and small unit need the mobility to pursue and defeat a fleeting enemy in complex terrain. Reducing the collective weight of items carried by the Soldier improves his mobility and survivability in difficult terrain. Any increase in weight will reduce the Soldier's mobility, survivability, and may negatively impact mission accomplishment (e.g. capture of a fleeing high value target). Secondary effects of increased weight are a reduction in Soldier endurance, increased susceptibility to heat injury, and potential hindrance of buddy evacuation of wounded Soldiers. As a result, the Army is continuously working to reduce the weight carried by the Soldiers.

The CHAIRMAN. Please explain the Army's history with the Pinnacle Dragon Skin body armor system.

General THOMPSON and General BROWN. Below is a summary of the Army's history with Pinnacle Dragon Skin body armor:

Developmental Efforts:

Test Date	Agency/Test Site	R&D
- Jan 2001-Jan 2003	ARL - Aberdeen Test Center (Phase 1)	Flexible Armor Evaluation (Small Business Initiative Research) Contract with the Army
July 2003-July 2006	ARL - Aberdeen Test Center (Phase 2)	

The information below shows testing at H.P. White an independent NIJ certified test facility and at the Army Test and Evaluation Command, Aberdeen Test Center:

		Result
- May 2004	Army/HP White	Failed
- Sep 2005	Marine Corps/HP White	Failed
- Dec 2005	Army/Aberdeen Test Center	Inconclusive
- Jan 2006	Army/HP White	Failed
- Feb 2006	Air Force/Aberdeen Test Center	Failed

The U.S. Army issued a Safety of Use Message (SOUM) dated March 17, 2006 specifying that Soldiers are only authorized to wear Interceptor Body Armor (IBA). The decision to publish the SOUM was to inform Soldiers that commercial body armor products, not certified by the U.S. Army, are unsafe and could cause death or serious injury.

The CHAIRMAN. Are you going to conduct another first article test on the Pinnacle Dragon Skin system? What if Dragon Skin passes ballistic testing? Would you allow Soldiers to wear Dragon Skin? If no, why?

General THOMPSON and General BROWN. The U.S. Army has a current body armor solicitation, number W91CRB07R0041, posted on Federal Business Opportunities (FedBizOpps) May 27, 2007 with a closing date of July 27, 2007. If Pinnacle Armor submits a proposal and the requisite number of Preliminary Design Models (PDMs), the U.S. Army will conduct first article test protocols of Dragon Skin during source selection. If Pinnacle Armor Dragon Skin is selected for contract award, a first article test will be conducted. While ballistic testing is important, any body armor system must meet all Army requirements, to include weight, area coverage, modularity, etc. The decision to allow Soldiers to wear Dragon Skin is not based on ballistics alone. The weight requirement is absolutely critical to the overall body armor requirement. The Soldier's load, both weight and cube, must not degrade the mobility of the dismounted Soldier and the momentum of small unit operations in close combat in close, complex terrain. Any increase in weight will reduce the Soldier's mobility and endurance while simultaneously increasing their risk of becoming a heat casualty. Additionally, the modularity of today's IBA affords the Commander on the ground the ability to determine configuration based on mission requirements.

The CHAIRMAN. Has NBC News provided the Army with their official test results? Did the Army confirm that the IBA system used in the NBC News test was a product representative of current body armor?

General THOMPSON. Lisa Myers (NBC correspondent) told Brigadier General Brown she would provide the government with NBC's test results during her May 8, 2007 interview. To date, NBC has not provided the test results. The U.S. Army has not been able to determine how ballistic plates ended up in Germany or been able to confirm that the plates used in the NBC news report were representative of the current Interceptor Body Armor.

The CHAIRMAN. Are you aware of any request made by NBC to any individual in the DOD for a qualified IBA test article?

General THOMPSON. The U.S. Army is not aware of any such request.

The CHAIRMAN. Do you use the same test standards and protocols for all body armor vendors?

General THOMPSON. Yes, by performance specification.

The CHAIRMAN. How often have you had full and open competitions or solicitations for body armor? How many vendors usually participate in these competitions? How many vendors are currently used to produce the E–SAPI plates?

General THOMPSON. The U.S. Army publicly announces body armor solicitations to meet U.S. Army requirements. Since the start of Operation Iraqi Freedom, the

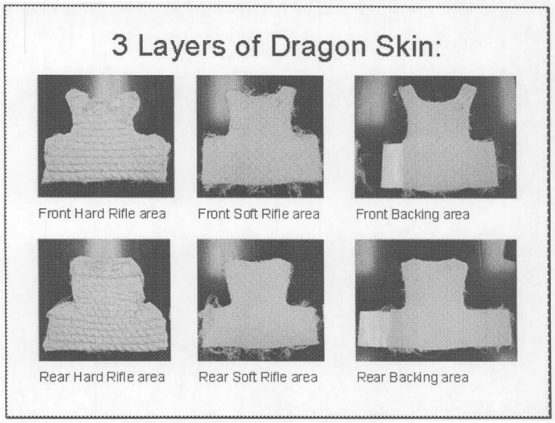
U.S. Army has publicly announced three body armor solicitations. The U.S. Army has six contractors currently under contract to produce ESAPI plates.

The CHAIRMAN. During the May 2006 tests did you deviate from first article test protocol procedures? If so why did you deviate?

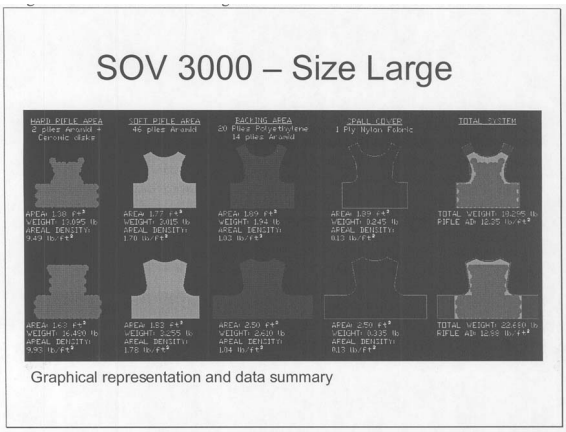
General THOMPSON. The Army did not deviate from any first article test protocol procedure during the May 2006 testing of the Pinnacle Armor Dragon Skin SOV 3000.

The CHAIRMAN. Explain how you arrived at the calculation of areal density of the two systems tested at H.P. White Laboratories in May 2006 to show that Dragon Skin is 50% heavier than IBA (12.53 pounds per square foot for Dragon Skin versus 8.05 pounds per square foot for IBA)?

General THOMPSON. There are three subcomponents of the Dragon Skin SOV 3000 armor that the Army tested in May 2006 at HP White. These subcomponents are shown below:



The Army performed the areal density calculation by weighing and measuring the area of each of the three layers of the Dragon Skin. The weight of each layer was divided by its area to determine the areal density of each layer in pounds per square foot (PSF). The three areal densities were added together with the areal density of the spall cover to determine the areal density of the front and rear armor panels. An example calculation for the Dragon Skin SOV 3000 in size large is shown below:



ESAPI areal density is calculated by dividing the weight of each size of ESAPI by the area of the respective size plate. The areal density of the ESAPI plate alone works out to 7.0 pounds per square foot. The areal density of the soft armor of the Outer Tactical Vest is nominally 1.05 pounds per square foot. Therefore, the total areal density of the complete Interceptor Body Armor package (hard and soft armor)

equates to 8.05 pounds per square foot and can be compared to the complete Dragon Skin armor areal density.

The CHAIRMAN. We understand you just awarded a new contract for an improved outer tactical vest. Was this contract awarded under full and open competition? How many vendors competed? Did you consider Dragon Skin or any other system that was not of a rigid plate standard design?

General THOMPSON. No, the Improved Outer Tactical Vest (IOTV) contract was awarded on a sole source basis to meet urgent and compelling requirements of the theater commander. The contract was awarded to two vendors. The IOTV has three primary improvements: a quick release, less weight and more area coverage. Dragon Skin could not fulfill the role of the IOTV, because the IOTV is a body armor carrier only. Dragon Skin is an integrated carrier/plate system that is not modular. Dragon Skin significantly weighs more than IBA. If the U.S. Army determines that there is an additional requirement for IOTV, beyond the theater need, a full and open competition will occur.

The CHAIRMAN. How do you encourage the development of next generation body armor by the industrial and R&D communities and what is the Army's process for evaluating these potential advances?

General THOMPSON. As with all systems, to include the next generation body armor, the U.S. Army continually collaborates with the industrial base for technology to meet U.S. Army requirements. In the area of body armor, the U.S. Army encourages industry with the opportunities to show and demonstrate their products. For example, the U.S. Army sponsors open industry days and holds Soldier Protection Demonstrations to allow industrial base vendors to demonstrate their body armor products. The U.S. Army also has a program called the Soldier Enhancement Program (SEP) on the PEO Soldier public web site for any vendor to post ideas for subsequent evaluation by U.S. Army subject matter experts. Additionally, the U.S. Army has research and development funds programmed in the Program Objective Memorandum (POM) to fund future developments of the next generation body armor.

The CHAIRMAN. Isn't ESAPI export controlled? How did ESAPI plates end up in a German test lab?

General THOMPSON. Yes, ESAPI is export controlled. To our knowledge, armor plates supplied to NBC for their tests in Germany were not provided by one of the current or past ballistic plate suppliers to the U.S. Army or by the U.S. Army.

The CHAIRMAN. We understand that the Army has been interested in flexible armor systems for several years and has supported the development of Pinnacle Armor Dragon Skin technology through the Small Business Innovation Research program with the Army Research Laboratory. Please summarize this program.

General THOMPSON. USA Armoring (since renamed to Pinnacle Armor) was awarded a $120,000 Phase I Small Business Innovation Research (SBIR) contract with a period of performance from January 10, 2001 to January 12, 2003. The overall objective of the Phase I effort was to develop a flexible, lighter, thinner body armor capable of defeating multiple and repeated high power rifle threats. Upon successful completion of the Phase I effort, USA Armoring was awarded a $717,479.55 Phase II contract with a period of performance from July 7, 2003 to July 6, 2006. The overall objective of the Phase II effort was to develop flexible body armor that was capable of providing National Institute of Justice Level IV protection.

The CHAIRMAN. On page 8 of the recent XSAPI/ESAPI product description, section 3.9.1 Area of Coverage indicates that ". . . any cuts with open gap and/or slits on any materials used in XSAPI are not allowed." Does this statement preclude vendors who may submit flexible armor designs or mosaic tile designs from competing in this solicitation?

General THOMPSON. No. This restriction applies only to a specific type of technology used with hard ceramic inserts. Gaps or slits in the ceramic tile are not allowed under the referenced paragraph. Flexible designs will be submitted under the Flexible Small Arms Protective Vest purchase description, not under the XSAPI/ESAPI purchase description, so the statement contained in paragraph 3.9.1 does not apply to flexible armor designs. Rigid mosaic tile designs may be submitted under the ESAPI or XSAPI portion of the solicitation.

The CHAIRMAN. Do you feel the body armor your service is procuring to meet your operational requirements is the best available? Why? How did you reach that decision?

Colonel SMITH. The body armor the United States Navy is procuring to meet its operational requirements is the very best available. For our Naval Expeditionary Combat ground forces attached to Marine Forces in theater, the Navy procures the same body armor protection used by the Marine Corps. The Navy is procuring the

newer Modular tactical vests with all of the required ballistic protection as determined by the combatant commander. Our maritime forces in theater (such as Naval Coastal Warfare and Riverine) use ballistic vests that are designed for use in a maritime environment. All of the body armor procured has undergone stringent and rigorous testing to provide the maximum protection for our sailors in harm's way. The Navy will continue to leverage the Army and Marine Corps research and development initiatives to ensure that it has the best equipment available.

The CHAIRMAN. What is your opinion of the body armor test and evaluation procedures utilized today? What assurances can you give that they are open, fair, and effective?

Colonel SMITH. The Department of the Navy's body armor test and evaluation procedures utilized today are fair and reasonable representatives of what may occur on the battlefield and provide an excellent insight of the capabilities of each vest. The services identify their requirements and solicit proposals for any and all qualified vendors to produce a ballistic vest that would meet their requirements. The Department of Justice, with representatives from the government, DoD, and industry, conduct the testing of all submitted vests and records all of the results. The very best equipment, which meets our requirements, is selected and fielded. After fielding and deployment, the Department of the Navy conducts additional testing of those ballistic vests exposed in theater to measure any potential degradation of performance.

The CHAIRMAN. What is your service's current safety of use policy with regard to operationally deployed forces using non-mil-spec, privately procured body armor? When did you make this decision? a. Please explain the rationale behind this decision?

Colonel SMITH. The following excerpt is taken from NAVADMIN 149/07, Navy Policy on the Wear and Purchase of Body Armor and Personal Protective Equipment (PPE), released June 08, 2007:

"INDIVIDUAL SAILORS SHALL NOT USE COMMERCIAL PPE IN LIEU OF DEPARTMENT OF DEFENSE TESTED, APPROVED AND ISSUED PPE. COMMANDERS MAY AUTHORIZE MEMBERS OF THEIR COMMANDS TO USE COMMERCIALLY PURCHASED PPE ITEMS IN ADDITION TO THOSE ISSUED BY THE GOVERNMENT, AS LONG AS ADDITIONS DO NOT REPLACE OR INTERFERE WITH THE FUNCTIONALITY OF APPROVED PPE."

This NAVADMIN reiterated existing Navy policy that has been in place for several years. There has been no alteration or change to the policy following the NBC News story on Pinnacle Armor's "Dragon Skin." However, the controversial story did create the circumstances where we felt it was necessary to restate existing policy to protect our sailors from substandard equipment.

The CHAIRMAN. What are your body armor requirements? When do you expect to meet these requirements?

Colonel SMITH. Operationally, Navy personnel in harm's way are completely outfitted with the appropriate body armor authorized for their mission as dictated by theater COCOM guidance.

The Navy acquires body armor for three main mission requirements: Navy expeditionary forces, individual augmentees assigned to joint forces, and shipboard antiterrorism.

Navy expeditionary forces comprise of Naval Construction, airlift support, cargo handling, maritime security, Explosive Ordnance Disposal, Riverine, and medical/Marine Corps support forces. Navy expeditionary forces that operate over land, such as the Seabees and EOD forces, require enhanced ballistic and fragmentation protection for the torso and extremities. The Naval Construction Force's requirements are being met with the procurement and fielding of the Modular Tactical Vest throughout the end of July 2007. Naval expeditionary forces that operate on the water, such as Naval Coastal Warfare (NCW) and the Riverine forces, require a lightweight, Tactical Maritime Body Armor System that includes a single pull release mechanism allowing for the vest to fall away and the employment of float packs to maintain positive buoyancy.

Individual Augmentees who operate exclusively on land with joint forces will continue to use the Outer Tactical Vest (OTV) with level IV ballistic protection, as provided by the Army.

Shipboard Anti-Terrorism personnel require a concealable body armor that provides extended level III ballistic coverage of the front, sides, and back of the torso. The vest must also be neutrally buoyant for enhanced safety during water operations.

The FY07 Supplemental request included $33M for individual protection equipment. This includes not only body armor, but also helmets, ballistic eyewear, protective clothing, etc. The body armor portion was $15M to include initial outfitting for

Riverine forces with the Tactical Maritime Body Armor System, and outfitting Naval Construction Forces scheduled to deploy in September with Modular Tactical Vests.

The Navy has requested additional body armor with the FY08 budget request to continue supporting body armor upgrades and refurbishment. The body armor requirement for FY08 is still under review and will evolve as a result of operational tempo.

The CHAIRMAN. Please list all the qualified vendors that supply your service with body armor, by body armor component, to your branch of service.

Colonel SMITH. See below:

OTV

Specialty Defense (Dunmore, PA)

MTV

PPI (Sunrise, FL)

E-SAPI

Armor Works (Tempe, AZ)
ArmorHoldings (Phoenix, AZ)
Ceradyne (Costa Mesa, CA)

Side SAPI

Integrator - Source One (Wellington, FL)
Carrier - MED-ENG (Ontario, Canada)
Carrier - PPI (Sunrise, FL)
Carrier - Specialty Defense (Dunmore, PA)
Plate - Ceradyne (Costa Mesa, CA)
Plate - Diamondback Tactical (Glendale, AZ)
Plate - Armor Holdings (Phoenix, AZ)
Plate - Armor Works (Tempe, AZ)
Plate - ArmorHoldings (Phoenix, AZ)

QuadGard

FS Technology (Alexandria, VA)
CoverCraft (Pauls Valley, OK and Wichita Falls, TX)

LWH

Gentex Corp (Simpson, PA)

Goggles and Spectacles

ESS Inc. (Sun Valley, ID)

Combat Ear Plug

Aearo Company (Indianapolis, IN)

The CHAIRMAN. Do you feel the body armor your service is procuring to meet your operational requirements is the best available? Why? How did you reach that decision?

Colonel SMITH. I am confident that our current body armor is the best available to meet our mission requirements in defeating small arms rifle fire threats at an acceptable weight. Maintaining flexibility and agility is key to battlefield success. There have been countless examples of our body armor saving lives. To date, we have not had any deaths due to a complete penetration of the Enhanced Small Arms Protective Insert by a threat round it is designed to defeat.

The CHAIRMAN. What is your opinion of the body armor test and evaluation procedures utilized today? What assurances can you give that they are open, fair, and effective?

Colonel SMITH. Our body armor test protocols are constantly evaluated to ensure that they thoroughly and properly test the plates in all potential operational environments. The test protocols are made available to all manufacturers and most of the manufacturers have a representative witnessing ballistic testing at the approved test laboratories.

The CHAIRMAN. What is your service's current safety of use policy with regard to operationally deployed forces using non-mil-spec, privately procured body armor? When did you make this decision? a. Please explain the rationale behind this decision?

Colonel SMITH. MARADMIN 262/07, which the Marine Corps published in Apr 07, articulates the Marine Corps' policy on the wear and purchase of body armor and personal protective equipment (PPE). Purchasing additional PPE is not recommended because (1) the Marine Corps is providing, at no cost to them, the best

PPE available and (2) current policy prohibits utilizing commercially purchased PPE in place of government tested, approved and issued PPE. While commanders may authorize their Marines to wear commercially purchased PPE items in addition to their issued PPE, it cannot be done if it interferes with functionality. The PPE that the Marine Corps issues has met government test standards. In many cases these standards exceed civilian test standards (as is the case for body armor). PPE that Marines can purchase commercially is not required to meet government test standards and therefore does not necessarily provide the same level of protection to the Marine.

The CHAIRMAN. What are your body armor requirements? When do you expect to meet these requirements?

Colonel SMITH. Our requirement is to provide deploying Marines with the best body armor available to protect from ballistic projectiles, blast, and fire, while balancing the need to keep the equipment light enough to permit Marines to carry out their missions under physical and environmentally demanding conditions. In that regard, we have fielded the Lightweight Helmet (fragmentation and 9mm ballistic protection, 3.45 lbs), and the Outer Tactical Vest (OTV) with Enhanced Small Arms Protective Inserts (E–SAPI; 7.62 ballistic protection, 5.5 lbs each) and Side Small Arms Protective Inserts (Side SAPI; 7.62 ballistic protection, 2.5 lbs each) to all Marines who deploy outside the continental United States. We have built up stockpiles to ensure that Marines are equipped during predeployment training in the same manner that they will be when they deploy. We are currently fielding the Modular Tactical Vest (MTV) to replace the OTV. The MTV uses the E–SAPI and Side SAPI plates but provides improved mobility and better comfort. This fielding will continue into the first quarter of FY08, but this will not represent the completion of our efforts. While considering the ever changing tactical environment, we are constantly conducting aggressive research and development to increase protection, increase climate consideration, and decrease equipment weight.

The CHAIRMAN. Please list all the qualified vendors that supply your service with body armor, by body armor component, to your branch of service.

Colonel SMITH.

OTV

Specialty Defense (Dunmore, PA)

MTV

PPI (Sunrise, FL)

E-SAPI

Armor Works (Tempe, AZ)
ArmorHoldings (Phoenix, AZ)
Ceradyne (Costa Mesa, CA)

Side SAPI

Integrator - Source One (Wellington, FL)
Carrier - MED-ENG (Ontario, Canada)
Carrier - PPI (Sunrise, FL)
Carrier - Specialty Defense (Dunmore, PA)
Plate - Ceradyne (Costa Mesa, CA)
Plate - Diamondback Tactical (Glendale, AZ)
Plate - Armor Holdings (Phoenix, AZ)
Plate - Armor Works (Tempe, AZ)
Plate - ArmorHoldings (Phoenix, AZ)

QuadGard

FS Technology (Alexandria, VA)
CoverCraft (Pauls Valley, OK and Wichita Falls, TX)

LWH

Gentex Corp (Simpson, PA)

Goggles and Spectacles

ESS Inc. (Sun Valley, ID)

Combat Ear Plug

Aearo Company (Indianapolis, IN)

The CHAIRMAN. Do you feel the body armor your service is procuring to meet your operational requirements is the best available? Why? How did you reach that decision?

Mr. THOMAS. Yes. The Interceptor Vest, with the Enhanced Small Arms Protective Inserts (ESAPI), is the AF standard body armor and meets AF operational requirements. We rely on the Army Program Executive Office (PEO) Soldier for defining the specifications and testing of the ESAPI plates. We purchase our Interceptor Vests and ESAPI plates from the Defense Logistics Agency as the DoD standard issue item. This standard does not apply to AF Battlefield Airmen units (Tactical Air Control Party TAC P), Combat Controllers (CCT), Para Rescue (PJ), Combat Weather (CW), Explosive Ordnance Disposal (EOD) and Security Forces (SF). They are exempt from wearing the Interceptor Vest due to specific mission requirements, however their vests use the ESAPI plates for body armor.

AF Special Operations Forces Support Activity (SOFSA) researched the available options for their unique mission and selected the Special Operations Forces Equipment Advanced Requirements (SPEAR) as their choice of tactical vest that also uses the ESAPI plate for armor protection.

The Interceptor Vest consists of two components; the Outer Tactical Vest (OTV) and the ESAPI plates. The OTV is made of a Kevlar weave, which protects the individual against 9mm rounds and is compatible with mission specific attachments, such as the Modular Lightweight Load-carrying Equipment (MOLLE) and All-purpose Lightweight Individual Carrying Equipment (ALICE) systems. In addition, there are two ESAPI plates, which are made of boron carbide ceramic and provide protection for vital organs. The plates weigh 10.9 pounds each and protect against multiple hits of 7.62 armor piercing rounds. In February 2004, after researching U.S. Army-tested body armor, the AF Security Forces Center accepted the Interceptor as their standard and suitable replacement for the dated Personal Armor Systems, Ground Troops (PASGT) flak vest.

EOD has identified a need for enhancements to the existing Interceptor, for Battlefield Airmen, to meet the demands of the numerous joint-sourced taskings. Their research has found that the Army Program Executive Office (PEO) Soldier is currently fielding new body armor to US Army forces called the Improved Outer Tactical Vest (IOTV). The IOTV is 3 pounds lighter than the AF standard body armor, offers an overhead opening; an internal waistband, providing a snug fit moving much of the weight from the shoulders to your waist; a single stage quick release for immediate doffing; a higher cut in the under arms to reduce the need for the Deltoid Auxiliary Protective System (DAPS); and can accommodate longer sizes.

The CHAIRMAN. What is your opinion of the body armor test and evaluation procedures utilized today? What assurances can you give that they are open, fair, and effective?

Mr. THOMAS. The procedures currently utilized for testing and evaluating individual body armor are both thorough and effective in providing the best technology to the warfighter. It is important to note that military requirements are more robust than those to which commercial law enforcement body armor is designed and certified. A description of the performance required by the military to be considered successful is included in the Purchase Description (PD) for each article to include the Small Arms Protective Insert (SAPI), Enhanced Small Arms Protective Insert (ESAPI), and Outer Tactical Vest (OTV). The PD fully describes the performance test requirements and threats each sample will be tested against. In addition, the PD describes the tests that need to be completed for both First Article Testing (FAT) and Lot Acceptance Testing (LAT).

The shot pattern for multiple shot testing is stated within the PD. There are many limiting factors to what is considered a "fair" shot for testing purposes, including distance between shots and distance from the edge. All testing to include environmental, durability, etc. is conducted with samples from the same production lot from each competitor. Testing occurs at independent test labs outside of the U.S. Army Test Center—these labs are available for testing by any competitor. Test results are given to both the company and to the Program Executive Office (PEO) Soldier—the Army's body armor acquisition authority.

A competitor cannot receive a contract for production until their samples pass the battery of tests included in FAT. After a contract has been awarded, each lot produced is subjected to LAT. A number of production samples are taken at random to be tested according to the LAT stated in each PD. If any test is failed, the lot is rejected by the Army. This ensures that failed lots do not make it into the field.

The CHAIRMAN. What is your service's current safety of use policy with regard to operationally deployed forces using non-mil-spec, privately procured body armor? When did you make this decision? a. Please explain the rationale behind this decision?

Mr. THOMAS. The Air Force does not currently handle testing and qualification of armor vests. Testing and qualification is done by the Program Manager for Soldier Equipment in the Headquarters, Department of the Army.

In general, the Combatant Commander for the deployed Area of Responsibility has set policy for "approved" armor. The policy prohibits the use of non-DoD armor.

The Air Force purchases armor for the deploying personnel through the Defense Logistics Agency using National Stock Number for the US Army Interceptor Body Armor. The Army's Program Executive Office, Soldier Equipment approves suppliers and updates/upgrades the armor.

As with all things, there may be exceptions, but the USAF policy is to allow use of only the armor approved by the Combatant Command for the deployed Area of Responsibility.

The CHAIRMAN. What are your body armor requirements? When do you expect to meet these requirements?

Mr. THOMAS. The AF requested $400M to purchase 177K sets of standard body armor to meet requirements. The AF Individual Body Armor (IBA) Fielding Plan is based on the maximum surge potential for contingencies (4 AEFs pairs). To date, the AF has received 163K IBA sets valued at $372M. After the FY07 spending is complete, the AF will still require 13K sets to complete the AF fielding plan (177K sets). The AF will request $28M for the remaining 13K sets in the FY09 Supplemental funding. When the Service Member's Safety Act of 2006 was created, it defined "complete sets" as including side armor plates, therefore the AF had to request $122M in FY08 GWOT funding to ensure compliance. Another requirement of $53M is still needed to replace the Desert Camouflage Uniform (DCU) pattern outer tactical vests with the Airman Combat Uniform (ACU) pattern. Assuming approval of FY09 Supplemental funding, the AF expects to meet its requirements upon completion of FY09 spending.

AF Special Operations Command (AFSOC) utilizes the Special Operations Forces Equipment Advanced Requirements (SPEAR). Although AFSOC has not identified additional requirements for AFSOC Battlefield Airmen, shortages encountered for AEF taskings are supported through the Expeditionary Theater Distribution Centers (ETDCs). There are requirements for 4,042 Small Arms Protective Inserts (SAPI) plates for 2,021 vests for support personnel. These AFSOC AEF support personnel requirements remain unfunded.

Explosive Ordnance Disposal (EOD) requirements are outlined in the Civil Engineering Equipment and Supply Listing for a total of 1,361 sets. Currently there are no additional fielding requirements at this time; however, EOD forces have expressed a desire to blend in better with the supported maneuver elements utilizing the Army Combat Uniform or ABU tactical patterned gear.

The CHAIRMAN. Please list all the qualified vendors that supply your service with body armor, by body armor component, to your branch of service.

Mr. THOMAS. The Defense Logistics Agency (DLA) defines "qualified suppliers/vendors" as contractors from whom DLA has received acceptable shipments and who remain actively in business. There are two qualified suppliers for the Outer Tactical Vest: Specialty Defense System and Point Blank Body Armor; two qualified suppliers for the Enhanced Small Arms Protective Inserts (ESAPI): Ceradyne and Simula; and three qualified suppliers for the Heavy ESAPI: Ceradyne, Simula and Armorworks.

Because Battlefield Airmen are supplied body armor to meet their unique missions, the following has been submitted: AF Special Operations Command identifies Special Operations Forces Support Activity from Natick Soldier Center, Natick, MA as the preferred vendor for the Special Operations Forces Equipment Advanced Requirements. Explosive Ordnance Disposal (EOD) technicians identify Paraclete RMV 019 for their Deltoid Auxiliary Protective System (DAPS) and Point Blank Interceptor for Outer Tactical Vests (OTV) with DAPS.

The CHAIRMAN. Did Pinnacle Dragon Skin fail ballistic tests commissioned by the Air Force Office of Special Investigations in February 2006? Please provide details regarding this situation.

Mr. THOMAS. According to the contract specifications, the Pinnacle Armor SOV 2000 Level III "Plus" Dragon Skin vests did not fail the single Level III threat tested by AFOSI on 16 Feb 06, however, they did fail to protect against the threats Pinnacle promised they would defeat. It's important to note the 16 Feb 06 test was not a standardized and certified NIJ Level III test. The 16 Feb 06 tests were performed to reveal the capabilities of Dragon Skin Level III "Plus" vests discussed verbally and by email correspondence between Pinnacle Armor and HQ AFOSI personnel. It failed to protect against those threats.

Based upon the promises made by Pinnacle in the e-mail attached below, AFOSI requested the Aberdeen Test Center fire the following Level IV rounds into the vests on 16 Feb 06 to confirm Pinnacle's claims.

1.) 7.62 x 54mm 147 GR, (LPS - light-ball ammo w/mild steel core) - PENETRATION despite Pinnacle Armor verbal and email correspondence assurances it would stop this threat.

2.) 7.62 x 39mm 120 GR, (BZ - armor piercing incendiary (API)) - PENETRATION despite Pinnacle Armor verbal and email correspondence assurances it would stop this threat.

3.) 7.62 x 39 mm 122 GR, (PS - steel case mild steel core) - PASSED as advertised on Pinnacle Armor website.

Two additional Level IV threats that Pinnacle representatives stated the SOV 2000 Level III "Plus" Dragon Skin Armor could stop were not tested. These threats were the SS–109 Green Tip 5.56mm (M–855) and 7.62x51mm M–80 ball.

The CHAIRMAN. What is the current position of the Air Force with respect to procuring Pinnacle Dragon Skin?

Mr. THOMAS. We can only answer for our organization and not the entire Air Force. Due to the test failure during an official NIJ Level III test on 13 Jun 06, AFOSI currently does not plan to procure Pinnacle Dragon Skin Body Armor. In addition, the Air Force issued a debarment notice to Pinnacle Armor on 21 Jun 07. This would preclude any government agency from procuring products from Pinnacle Armor absent a specific exception.

The CHAIRMAN. Your testimony indicates the Air Force is in the process of pursuing official debarment action against Pinnacle Armor, Inc. Where in the process is the Air Force?

Mr. THOMAS. Pinnacle Armor, Inc. and two of its officers, Neal Murray and Paul Chopra are listed on the General Services Administration (GSA) Excluded Parties List System (EPLS). The content of the GSA EPLS listing is shown below. EPLS shows all government contractors who are debarred from contracting with the federal government, or, as in this case, proposed for debarment. SAF/GCR is the debarment official who made the decision to propose debarment in this case.

EPLS Record

as of 17-Jul-2007

Name	Pinnacle Armor, Inc.
Classification	Firm
Exclusion Type	Reciprocal
Description	none

Address(es) --

Address	5425 E. Home Ste 104, Fresno, CA, 92727
DUNS	105869213

CT Action(s) --

Action Date	21-Jun-2007
Termination Date	Indef.
CT Code	A1
Agency	AF
Action Status	Modified (02–Jul–2007)

Cross Reference(s) --

Name	Action Date	Term Date	CT Code
1. Neal Murray	20–Jun–2007	Indef.	A1
2. Paul Chopra		Indef	A1

The CHAIRMAN. Has the Air Force sent formal notification of debarment action to Pinnacle Armor, Inc?

Mr. THOMAS. Pinnacle Armor, Incorporated, was proposed for debarment by the Air Force on June 21, 2007. Pinnacle has not as yet provided us with any submission or argument in opposition to the proposed debarment, and has not requested a hearing.

The CHAIRMAN. Does the Defense Federal Acquisition Regulations System (DFARS) specify a timeline for the Service to make a decision on whether or not to proceed with proposed debarment? How long could it take before the AF decides on the issue?

Mr. THOMAS. Pinnacle Armor, Incorporated, was proposed for debarment by the Air Force on June 21, 2007. Pinnacle has not as yet provided us with any submission or argument in opposition to the proposed debarment, and has not requested a hearing.

The CHAIRMAN. Do you feel the body armor your service is procuring to meet your operational requirements is the best available? Why? How did you reach that decision?

Colonel NOONAN. Yes, the Body Armor we procure for Special Operations Forces (SOF) is the best armor to meet our SOF-peculiar requirements. The SOF Personnel Equipment Advanced Requirements (SPEAR) Body Armor/Load Carriage System (BALCS) offers the best optimization for our SOF operators for ballistic protection, modularity, tailorability for mission, range of motion, weight, and bulk.

We have been fielding SPEAR BALCS since 1999, with significant upgrades in 2001 (ballistic plates), 2003 (vest modularity, weight, bulk), and 2006 (Modular Supplemental Armor Protection). We receive continuous feedback from our operators on the performance of the BALCS systems through quarterly SPEAR Integrated Product Teams (IPTs) involving our Service Component Representatives, the U.S. Special Operations Command headquarters staff, and the Program Manager. We have had numerous occasions to re-test and improve the BALCS systems, based on deficiencies noted in combat since 2001 and have taken many opportunities to do so in support of SOF operators.

The CHAIRMAN. What is your opinion of the body armor test and evaluation procedures utilized today? What assurances can you give that they are open, fair, and effective?

Colonel NOONAN. The Special Operations Forces (SOF) test and evaluation procedures used today are better than they have ever been, especially with the developmental work and improved methodologies developed over the past ten years. The ability to discriminate between performing and non-performing materials and end items against current and emerging ballistic requirements is excellent.

The ballistic methodologies do not discriminate by type of armor technology, size, shape, or system bulk; they objectively determine the ability of the specific system being tested to stop a specific type of threat projectile in all environmental conditions required by SOF. The current standards replicate the worst case scenario seen on the battlefield by our Service men and women.

The CHAIRMAN. What is your service's current safety of use policy with regard to operationally deployed forces using non-mil-spec, privately procured body armor? When did you make this decision? a. Please explain the rationale behind this decision?

Colonel NOONAN. The U.S. Special Operations Command (USSOCOM) does not authorize individuals to purchase body armor of any type, military specifications or otherwise. In accordance with a December 2004 memorandum, it is USSOCOM command policy that the SOF Personnel Equipment Advanced Requirements (SPEAR) Body Armor/Load Carriage System (BALCS) components are the only USSOCOM approved body armor components for SOF Personnel. In June 2007, that message was amended to allow the use of Service provided armor for training.

The CHAIRMAN. What are your body armor requirements? When do you expect to meet these requirements?

Colonel NOONAN. The required basis of issue for the standard SOF Personnel Equipment Advanced Requirements (SPEAR) Body Armor is 32,507. Sufficient funding is in place to meet this requirement by the end of Fiscal Year 2008.

The CHAIRMAN. Please list all the qualified vendors that supply your service with body armor, by body armor component, to your branch of service.

Colonel NOONAN. Tactical Plates (side, front, Modular Supplemental Armor Protection) are produced by Ceredyne in Costa Mesa, California. The U.S. Special Operations Command (USSOCOM) is in the process of conducting a full and open competition for completion of fielding and sustainment of the plates. Contract award is anticipated for the second quarter of Fiscal Year (FY) 2008.

Soft Armor Inserts (front and back) and the Low Visibility Body Armor Vest are produced by Armor Holdings (Safariland) in Jacksonville, Florida and Ontario, California. They currently hold a five year Indefinite Delivery/Indefinite Quantity contract.

The Releasable Body Armor Vest is produced by Eagle Industries in Fenton, Missouri. A full and open solicitation will be released in July 2007 for completion of the fielding and sustainment of the vest. Contract award is anticipated for the first Quarter of FY 2008.

Special Operations Forces Personnel Equipment Advanced Requirements (SPEAR) Body Armor Load Carriage System are produced by the National Institute of the Severely Handicapped (NISH) (The Resource Center). This system's components

(harnesses, pockets, and pouches) are primarily made by Eagle Industries and packaged by NISH. A full and open solicitation will be released in July 2007. Contract award is anticipated for the first Quarter of FY 2008.

The CHAIRMAN. From your team's perspective is the current body armor issued today effective in addressing current threats in Iraq and Afghanistan? On what evidence do you make that conclusion?

The GAO. In our April 2007 review[1], we reported that the Army and Marine Corps have taken several actions to meet theater inventory and ballistic requirements. Army and Marine Corps body armor is currently meeting theater ballistic requirements and the required amount needed for personnel in theater. Our audit work primarily focused on Army and Marine Corps body armor systems for U.S. service members deployed within the U.S Central Command (CENTCOM) area of operations, including Iraq and Afghanistan. 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.

Our conclusions are based on our audit work conducted between November 2006 and March 2007. To determine whether the Army and Marine Corps are 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 visited the Army and Marine Corps body armor program offices to obtain and analyze overall development and management of their systems. We analyzed the ballistic requirements and compared these requirements to the body armor systems provided to personnel. The DOD operations officials and the Army and Marine Corps body armor program officials provided us with information about both theater requirements and body armor systems available worldwide for the Army and the Marine Corps. We analyzed this information to determine if the amount of body armor available would meet the amounts needed in theater. Their information included the quantities of the outer tactical vests and its subparts provided to military personnel. We also visited the following sites—Fort Stewart, Georgia; Fort Lewis, Washington; the Naval Station and the Amphibious Base in Norfolk, Virginia, and the Marine Corps Base in Quantico, Virginia. At Fort Stewart and Fort Lewis, we interviewed Army officials to determine if body armor was being distributed to service members. To determine the inventory/distribution practices for those preparing to deploy, we reviewed documentation and interviewed officials at these sites in addition to CENTCOM officials. 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 also met with DOD Inspector General staff who have worked on body armor issues, and obtained and reviewed reports they have issued. We selected and analyzed Army classified readiness reports from December 2006 to February 2007 and two months of Marine Corps reports from December 2006 to January 2007 for deploying and deployed combat units. Our analysis was to determine whether commanders were reporting problems with body armor, such as shortages, or whether the Army identified it as a critical item affecting readiness.

The CHAIRMAN. To what extent does the Department of Defense's bureaucracy foster an environment in the research and development community that values development over research? Is there a way to re-structure the Department of Defense's research and development community so that more emphasis is placed on research?

The GAO. The scope of our completed work on body armor, issued last April, did not address these issues, and, thus, we are not in a position to answer this question at this time.

The CHAIRMAN. The Government solicits proposals from potential offerors through issuance of a solicitation. Can you please explain why the Request for Proposal in dealing with body armour was strictly narrowed as to disqualify flexible vests? To your knowledge did Research and Development tests distort or contaminate the first article test?

The GAO. As with the previous question, the scope of our completed work on body armor, did not address these issues, and, thus, we are not in a position to answer this question at this time.

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[1] GAO, Defense Logistics: Army and Marine Corps' Individual Body Armor Systems Issues, GAO–07–662R (Washington, D.C.: April 26, 2007)

The CHAIRMAN. Please describe how you classify body armor protection levels? When was your criteria established? Are you in the process of updating these criteria? If so, will it include environmental considerations?

Dr. MORGAN. The threat levels as identified in the National Institute of Justice (NIJ) Standard were originally established following a reiew of the statistics concerning weapons confiscated nationwide during the period from 1964 to 1974. The criteria are periodically updated to account for changes in threats faced by law enforcement officers as identified in the ongoing review of ammunition threats conducted by the Office of Law Enforcement Standards (OLES) at the National Institute of Standards and Technology (NIST), a review of the Federal Bureau of Investigation (FBI) Uniform Crime Reports (UCR) Law Enforcement Officers Killed and Assaulted (LEOKA) data, and input from the law enforcement community concerning emerging threats. Specific information on the six threat levels is detailed in the standard itself, which can be accessed at http://www.nlectc.org/pdffiles/0101.04RevA.pdf.

NIJ is currently in the process of revising these criteria. This next revision to the NIJ Standard will include modifications to the existing threat levels and will also include peerformance requirements for armor that has been subjected to environmental conditioning.

The CHAIRMAN. How many different U.S. standards exist that govern the performance and effectiveness of body armor products?

Dr. MORGAN. Most law enforcement agencies in the United States require that the armor they purchase meet the current NIJ standard (*NIJ 2005 Interim Requirements for Bullet Resistant Body Armor*), which is the only U.S. standard widely recognized and used for commercial body armor. The Bulletproof Vest Partnership Program (BVP), through the Office of Justice Programs' (OJP) Bureau of Justice Assistance, provides funding of up to 50 percent of each vest purchased or replaced by certain law enforcement applicants, but only vests that comply with the NIJ Standard may be purchased with BVP Program funds. However, there is no federal law requiring body armor to meet the NIJ standard.

There are other body armor standards or specifications in use: The FBI has a body armor test protocol that requires body armor to meet the NIJ standard, but also includes several additional requirements to meet the special needs of the FBI. Other federal agencies may specify the NIJ standard and then tailor additional requirements to their needs. The Department of Defense (DOD) relies on its own test methods and specifications to accept or reject body armor models. Additionally, some other ballistic resistance standards exist in the U.S., but they tend to be focused on other types of equipment, not body armor. For example, ASTM International. ASTM F–1233, Test Method for Security Glazing Materials and Systems; and Underwriters Laboratories UL 752—Standard for Bullet-Resisting Equipment.

The CHAIRMAN. What is the process by which a supplier obtains NIJ certification for a body armor product?

Dr. MORGAN. Currently, the testing of models of body armor to determine compliance with the *NIJ 2005 Interim Requirements for Bullet-Resistant Body Armor* (which modify and supplement NIJ Standard 0101.04—Ballistic Resistance of Personal Body Armor) is conducted at the manufacturer's expense. Manufacturers negotiate test contracts directly with NIJ-approved test laboratories. Once a test contract has been established between the manufacturer and the laboratory, the manufacturer submits the required number of samples (six for threat levels I, IIA, II, and IIIA, four for Level III and nine for Level IV) and the manufacturer's declarations required by the *NIJ 2005 Interim Requirements for Bullet-Resistant Body Armor* to the National Law Enforcement and Corrections Technology Center (NLECTC)-National, where the samples are logged in and visually inspected for compliance with the labeling and workmanship requirements. If NLECTC-National staff determine the samples comply with these requirements and all of the necessary manufacturer's declarations have been properly executed and submitted, the test samples are forwarded to the designated laboratory, where they are tested in accordance with the requirements of the standard.

Upon completion of testing, laboratory staff conducts a post-test examination of the samples, detailing their findings and the test results using an NIJ-approved test report format. The test report and the tested samples are then returned to NLECTC-National, where NLECTC-National staff review the test report and tested samples to ensure the accuracy and completeness of the test report and adherence to the procedures of the NIJ Standard (e.g., proper shot placement on panels, verification of armor construction details, etc.). NLECTC-National then prepares the documentation demonstrating successful completion of the compliance testing process (i.e., executed manufacturer's declarations, test report and any related notes from NLECTC-National's review), and forwards this information to NIJ for review.

NIJ makes the final determination to issue a letter of compliance to the manufacturer for the model. If NIJ authorizes the issuance of a compliance letter, they direct NLECTC-National staff to prepare the letter and to update the online listing of all body armor models that have been tested by NIJ and found to comply with the *NIJ 2005 Interim Requirements for Bullet-Resistant Body Armor* on the NLECTC-National website, JUSTNET (http://www.justnet.org). The compliance letter is issued to the manufacturer, and the listing of all body armor models that have been tested by NIJ and found to comply with the *NIJ 2005 Interim Requirements for Bullet Resistant Body Armor* is updated. NLECTC-National maintains at least one complete sample of the item in their secure archives for future reference, and returns any remaining samples to the manufacturer.

The CHAIRMAN. What is the process by which an independent ballistics test laboratory obtains NIJ certification?

Dr. MORGAN. An independent ballistics test laboratory interested in obtaining NIJ-approved laboratory status to perform official compliance testing in accordance with NIJ Standards must apply in writing to NIJ[1]. The applicant laboratory must complete an application form, detailing the laboratory's technical and personnel qualifications, and demonstrating that they have adequate facilities, qualified technical personnel, and the necessary equipment to perform the tests required by the standard.

The completed application is evaluated by a team consisting of representatives of NIJ, NLECTC-National, NIST/OLES, and NIST's National Voluntary Laboratory Accreditation Program (NVLAP). Upon completion of this review, the laboratory's facilities will undergo an onsite inspection by a team consisting of representatives from NIJ, NLECTC-National, NIST/OLES, and NVLAP. NLECTC-National will schedule a mutually agreeable date for the onsite inspection. At the onsite inspection, the laboratory is expected to introduce to the inspection team all of the key operating personnel, allow for physical inspection of the facilities where the compliance testing will be performed, and demonstrate a thorough understanding of the test protocol. The laboratory must be fully prepared to demonstrate the capability to conduct a test in accordance with the *NIJ 2005 Interim Requirements for Bullet-Resistant Body Armor*.

Upon completion of the demonstration testing, the laboratory prepares a test report documenting the results in a format specified by NLECTC-National. The test report and armor samples are then submitted to NLECTC-National. Upon satisfactory completion of a review of the information and test samples submitted by the laboratory, NIJ will issue notice of approved status to the NIJ-qualified body armor compliance testing laboratory. NIJ-approved status is subject to specific terms and conditions, including announced or unannounced inspections and biannual renewal.

After the laboratory completes this process successfully, NLECTC-National will accept test reports from the laboratory for the purpose of issuing letters of compliance to the manufacturer of an armor model tested by the NIJ-approved laboratory. The test results from the NIJ-approved laboratory will also be used to update the listing of all body armor models that have been tested by NIJ and found to comply with the *NIJ 2005 Interim Requirements for Bullet-Resistant Body Armor*.

The CHAIRMAN. Has the Army submitted the IBA system for NIJ certification?

Dr. MORGAN. The Department of the Army has not submitted the IBA system to NIJ for compliance testing. NIJs voluntary compliance testing program, operated by NLECTC-National, accepts samples of armor for official compliance testing to NIJ Standards from armor manufacturers. In general, the Department of Defense relies on its own test methods and specifications to accept or reject body armor models.

The CHAIRMAN. Has Pinnacle received an NIJ level III certification? An NIJ level IV certification? In your view how would you rate the IBA body armor system relative to the NIJ levels?

Dr. MORGAN. One model of Pinnacle Armor (SOV2000.1/MIL3AF01) was on the list of body armor models that comply with the *NIJ 2005 Interim Requirements for Bullet-Resistant Body Armor* at Threat Level III. As a result of information presented at the House Armed Services Committee hearing, NIJ was made aware that this model of armor may not perform as expected over its declared warranty period of six years. As a condition of meeting the NIJ 2005 Interim Requirements for Bullet-Resistant Body Armor, the manufacturer declared that it had data to support its certification that the body armor would maintain its ballistic resistance over the declared warranty period. Pinnacle Armor also agreed to provide the information sup-

[1] The current process is described here. As part of NIJ's ongoing review of the body armor compliance testing program, NIJ plans to require accreditation under the National Voluntary Laboratory Accreditation Program as a prerequisite for consideration as an NIJ-qualified testing laboratory.

porting the certification to NIJ if requested. NIJ elected to exercise its option to request the information. After receiving and reviewing several data package submissions from Pinnacle Armor, NIJ determined that the information did not satisfactorily address its concerns and the model SOV2000.1/MIL3AF01 was removed from the list of compliant armor models.

Also as of July 25, 2007, Pinnacle Armor, Inc. does not have any models at Threat Level IV that comply with the *NIJ 2005 Interim Requirements for Bullet-Resistant Body Armor*.

There are no models currently compliant with the *NIJ 2005 Interim Requirements for Bullet-Resistant Body Armor* that bear the model designation "Interceptor," so we cannot comment on whether those armors would correspond to a particular threat level. That would only be possible after complete testing against the threats specified in the standard.

The CHAIRMAN. How many body armor products have been certified at NIJ Level III? At NIJ level IV?

Dr. MORGAN. As of July 25, 2007, there are 49 models of ballistic-resistant armor that comply with the *NIJ 2005 Interim Requirements for Bullet-Resistant Body Armor* at Threat Level III.

Also as of July 25, 2007, there are 61 models of ballistic-resistant armor that comply with the *NIJ 2005 Interim Requirements for Bullet-Resistant Body Armor* at Threat Level IV.

The CHAIRMAN. You indicate in your written statement you purchased the soft armor and hard armor Interceptor Body Armor system (both hard and soft components) for use in the NBC News limited side-by-side tests from Protective Products Intl., a subsidiary of the Ceramic Protection Company (CPC). To your knowledge is PPI a qualified source and supplier of the Interceptor Body Armor system (both hard and soft armor components) to any of the military services?

Colonel MAGEE. [The information referred to was not available at the time of printing.]

The CHAIRMAN. How were you able to by-pass ITAR restrictions for the ESAPI hard armor components of the IBA system?

Colonel MAGEE. [The information referred to was not available at the time of printing.]

The CHAIRMAN. Was the soft armor component used in the NBC News limited tests the modular tactical vest now used by the Marine Corps?

Colonel MAGEE. [The information referred to was not available at the time of printing.]

The CHAIRMAN. In your opinion what was wrong with the first article tests conducted by the Army in May 2006? What do you believe would account for the differences between the two tests even at ambient temperatures?

Colonel MAGEE. [The information referred to was not available at the time of printing.]

The CHAIRMAN. In your opinion were the tests conducted by NBC News in Germany a fair, objective, and comparable test with respect to evaluating the ballistic capability of body armor? On what basis do you make this evaluation? What protocol was followed to conduct these tests?

Colonel MAGEE. [The information referred to was not available at the time of printing.]

The CHAIRMAN. Do you think the overall weight of the system and environmental testing need to be taken into account for operational and tactical suitability?

Colonel MAGEE. [The information referred to was not available at the time of printing.]

The CHAIRMAN. What previous experiences have you had with observing body armor test and evaluation protocols and procedures? Are you familiar with both NIJ and IBA specifications and test procedures?

Colonel MAGEE. [The information referred to was not available at the time of printing.]

The CHAIRMAN. Are you aware of why NBC did not acquire Army IBA test articles from the Army? If NBC did in fact inquire to the Army and the Army declined, who in the Army declined to provide those vests?

Colonel MAGEE. [The information referred to was not available at the time of printing.]

The CHAIRMAN. What percent of your business is funded by the Army, the Department of Defense, and US government agencies respectively?

Mr. DUNN. [The information referred to was not available at the time of printing.]

The CHAIRMAN. Please provide any information you can regarding the Protective Products Intl (PPI) ESAPI armor plate first article testing.

Mr. DUNN. [The information referred to was not available at the time of printing.]

The CHAIRMAN. In your opinion please talk about the differences between the National Institute of Justice (NIJ) and Department of Defense body armor test standards. How would you compare the DOD IBA system to an NIJ Level 4 vest?

Mr. DUNN. [The information referred to was not available at the time of printing.]

The CHAIRMAN. Did NBC News try to contact your Laboratory in order to run limited side by side ballistic tests on Interceptor Body Armor and Pinnacle Armor, Inc "Dragon Skin" body armor?

Mr. DUNN. [The information referred to was not available at the time of printing.]

The CHAIRMAN. Did the Army or any other DOD official ever threaten any one in your organization regarding the NBC News limited ballistic tests?

Mr. DUNN. [The information referred to was not available at the time of printing.]

QUESTIONS SUBMITTED BY MR. SAXTON

Mr. SAXTON. The question is, how much armor-piercing round coverage is there in IBA versus Pinnacle?

General BROWN. Based on testing at an independent National Institute of Justice (NIJ) certified ballistic laboratory, Pinnacle Armor Dragon Skin will not protect Soldiers against the armor-piercing (AP) round threats in Iraq and Afghanistan. The table below shows the area coverage of Interceptor Body Armor (IBA) versus SOV 3000 Dragon Skin.

IBA	Weight	* Dragon Skin SOV 3000	Weight
XS – 1.88 sq ft	21.74 lbs	No equivalent size	
S – 2.14 sq ft	23.95 lbs	M – 2.53 sq ft	34.42 lbs
M – 2.35 sq ft	26.06 lbs	L – 3.04 sq ft	42.40 lbs
L – 2.60 sq ft	28.38 lbs	XL – 3.59 sq ft	47.73 lbs
XL – 2.86 sq ft	31.21 lbs	No equivalent size	

Note: Pinnacle vests are one size larger than IBA

* Dragon Skin SOV 3000 area of coverage is based on placement of ceramic discs. To date, independent testing has shown that SOV 3000 is ineffective against current AP threats.

QUESTIONS SUBMTTED BY MR. SPRATT

Mr. SPRATT. You recently testified that Pinnacle Armor redressed a manufacturing anomaly with respect to the production of the Dragon Skin® SOV–3000TM armor system, after it was revealed by a failure induced during U.S. Army testing of the system in May 2006. You described altering your manufacturing process to create overlapping seams of adhesive material upon which the armored disks are attached, in lieu of a process that abutted separate adhesive components together. Did Pinnacle Armor make other changes or modifications to the Dragon Skin® SOV–3000TM design since May 2006 that may have improved performance of the system as tested by NBC? If so, please describe each change or modification and the improvement that it was intended to effect.

Mr. NEAL. No. The system has not changed and does not need to.

QUESTIONS SUBMITTED BY DR. SNYDER

Dr. SNYDER. When did you determine what flaw in the production cycle of your Dragon Skin armor was responsible for this testing failure?

Mr. NEAL. It was determined upon inspection during the high heat cycle.

Dr. SNYDER. When was this production flaw corrected?

Mr. NEAL. It was corrected within a week of validation by this event, and confirmation with the laminator of the actual processing of the adhesive application process.

Dr. SNYDER. Have you notified all agencies and individuals of this flaw in the product who purchased Dragon Skin body armor produced prior to your correction of the production cycle?

Mr. NEAL. There were none at that time as it was a new roll of adhesive coated material that was used for this testing, and all other subsequent rolls that were on hand were inspected and did not have the same issue at the joints. There was only one customer that we had our first small roll of level 4 adhesive that we notified

as a matter of course, but the roll was only a quarter roll and was not long enough for a typical joint location.

Dr. SNYDER. Have you conducted a recall of Dragon Skin body armor units produced prior to your correction of the production cycle?

Mr. NEAL. No. The vest in possible question were inspected by the end-user and found not to have any issues with them. However, they have been instructed to send those few back if they should incur any changes.

QUESTIONS SUBMTTED BY MS. BORDALLO

Ms. BORDALLO. I am concerned that we spend a lot of money on development of products but we do not spend enough on research of new technologies that will directly benefit our servicemembers. I am wondering if this situation is present in the case about body armor? Specifically, how much Science & Technology money in RDT&E lines 6.1, 6.2, and 6.3 have gone into the research of improved body armor systems since 2001?

General THOMPSON. The Army is firmly committed to providing the best body armor available to our Soldiers and takes great care to balance the S&T investment with current and future needs. Since 2001, the Army has invested $109.9M in body armor related research. The $109.9M is split between 6.1 ($61.8M), 6.2 ($45.3M) and 6.3 ($2.8M) and contains funding in the Army's core program and funding added by Congress as special interest items. Investments span efforts in materials research, armor designs and modeling of both material and system performance.

Ms. BORDALLO. Additionally, in your testimony you state that additional funding is necessary for research and development. As a matter of fact, on page 8 of your testimony you say, "However, the Army is continually evaluating new technology, and additional funding for research and development would expedite that work." I am concerned that we indeed are short changing necessary research for helpful products. Can you elaborate on what risk was taken in this portion of the FY08 budget and what would be covered with additional funds?

General THOMPSON. The U.S. Army's FY08 budget request for R&D funding is sufficient for research and development of body armor systems.

Ms. BORDALLO. To what extent does the Department of Defense's bureaucracy foster an environment in the research and development community that values development over research? Is there a way to re-structure the Department of Defense's research and development community so that more emphasis is placed on research?

General THOMPSON. [The information referred to was not available at the time of printing.]

QUESTIONS SUBMTTED BY MR. FORBES

Mr. FORBES. If you were present for the testing of Dragon Skin, why did you not raise concerns at the time of the test if you believed they were being performed unfairly?

Mr. NEAL. The Army was very adamant that I was there at their discretion and I was not to be involved in any manner with how the testing was to be completed. Therefore, in trying to not "rock-the-boat" I attempted to adhere strictly to their requests, but took notes and kept a mental track of the events during the testing.

On the first day I did start out in disagreement when both Karl Masters the Test Director and James Zheng from Natick, who was conducting the tests could not even define a "Hard Edge" to the flexible system, and could not understand the overlap configurations or how to define the areal densities of the flexible armor system.

On the second day I did complain about James Zheng taking R&D shots and deviating from the test protocol and procedures, especially by shooting into an area that did not have rifle defeating discs in place. That was the time when James and Karl began a heated argument on the testing procedures and the Karl threw down his clipboard and told James Zheng that he would be responsible for the testing that he was conducting and walked out of the range. I also complained about not being able to view all of the events such as the post x-rays, etc.

I also did not agree with the termination of the testing as we had not failed anything according to protocol and procedures up to that point. A third party independent FAT test will show you that the Dragon Skin® system is as we have always stated, ready for military use and has been for over 10 years.

Mr. FORBES. Army officials have noted that the Dragon Skin failed at extreme temperatures, and they have also indicated that the weight of the Dragon Skin might be as much as 40-70% heavier than other armor, such as IBA. Since you were

at the test, do you agree that Dragon Skin will fail catastrophically at extreme temperatures? Do you agree that a comparable IBA vest weighs less?

Mr. NEAL. No, I don't agree and attached you will see ballistic data that refutes the allegation that the armor fails in extreme temperatures as well as in the document package that was provided at the House Armed Services Hearing. Additionally you will note that the shots were placed directly in the center of the discs, and not at an overlap joint, as the Army has alleged that the center is the weakest point of the system. Please see Documents #1 & 2.

[The information referred to is retained in the committee files and can be viewed upon request.]

I also do not agree with the weight allegations either. I tried to explain this during the hearing but it seemed as if no one tried to understand the differences. The weight vs. ballistic performance are so light that the Army classified it "SECRET" due to its mass efficiency as per the Security Classification Guide.

The document package from the hearing also has the data to refute it. The XL vest that the Army showed you had 5.6 square feet of rifle coverage. The Interceptor that they showed had 2.8 square feet of coverage. That is not an "apples-to-appIes" comparison. The Dragon Skin® vest had twice the amount of rifle defeating coverage. If you double the weight of the Army's 28 pound vest you will then see the real difference. By the way, the actual weights of every vest as weighed and written down by the Army is also in the documents package. You can validate the weights by the serial number on the vest. It weighs less than what the scale showed, and that is their document.

Mr. FORBES. Has any Pinnacle Armor product received a Level 4 NIJ certification?

Mr. NEAL. NO. Not yet. We are preparing for the side-by-side FAT test first and foremost as we have not been receiving any requests from the law enforcement community for a level 4 variant yet.

Mr. FORBES. In light of any new information between the May 2006 test and today, do you believe another test of Dragon Skin is warranted?

General THOMPSON. No, Pinnacle Armor has not presented any new information regarding product improvements to the Dragon Skin tested by H. P. White, an independent NIJ certified laboratory, in May 2006. They have the opportunity to submit a proposal in the U.S. Army's current body armor solicitation number W91CRB07R0041, posted on Federal Business Opportunities (FedBizOpps) on May 27, 2007 with a closing date of July 27, 2007.

Mr. FORBES. Has Pinnacle Armor attempted to win any recent contracts to supply body armor to the Army?

General THOMPSON. No, Pinnacle Armor has never submitted a proposal for U.S. Army body armor solicitations.

Mr. FORBES. Do you believe it would be responsible to deploy body armor which was tested exclusively at room temperature? Why or why not?

General THOMPSON. It would not be responsible to deploy body armor tested exclusively at room temperatures. Body armor must be operational effective in all environmental conditions.

Mr. FORBES. Can you explain for the Committee how much —weight— is given to other factors aside from the protective qualities of a body armor vest, such as modularity and weight?

General THOMPSON. The U.S. Army evaluates the complete body armor system and applies equal significance to consideration of weight and other human factors. The weight requirement is absolutely critical to the overall body armor requirement. The Soldier's load, both weight and cube, must not degrade the mobility of the dismounted Soldier and the momentum of small unit operations in close combat in close, complex terrain. Any increase in weight will reduce the Soldier's mobility and endurance while simultaneously increasing their risk of becoming a heat casualty.

Mr. FORBES. Has Dragon Skin been certified as a Level 4 NIJ certification?

Dr. MORGAN. As of July 25, 2007, Pinnacle Armor, Inc., the sole manufacturer of Dragon Skin, does not have any models at Threat Level IV that comply with the *NIJ 2005 Interim Requirements for Bullet-Resistant Body Armor.*

Mr. FORBES. Do you believe the Army standard that requires an armor capable of withstanding more than one shot closer to the edge of the body armor represents a lower, equal, or higher standard as the Level 4 NIJ certification?

Dr. MORGAN. In many cases, it can be difficult to compare standards because of differences between them. In this particular case, the comparison is easier. Generally, a requirement for either more shots on an armor panel/plate or for shots to be placed closer to the edge, or to each other, represents a greater challenge to the armor system. This is due to certain material limitations and the potential for damage from one shot to affect the outcome of any subsequent shots.

For the level IV threat, the NU standard requires only one shot on an armor plate, and that shot must be located at least three inches from the nearest edge. One must also consider that the NIJ standard specifies only one type of ballistic threat for level IV protection, and only two shots with this threat are required for the basic ballistic resistance test.

The Department of Defense (DOD) Enhanced Small Arms Protective Inserts testing requires that the armor sample must resist a complete penetration from the same threat type (i.e., same projectile moving at essentially the same speed) impacting approximately one inch from the edge, as well as a second shot located elsewhere on the same armor plate. The DOD specification identifies other ballistic threat rounds that must also be used to assess the performance capabilities of the armor system.

In addition to projectile penetration assessments, another requirement that must be met during these tests is that the backface signature (BFS, or the maximum depth of the impression left in the clay behind the armor due to the ballistic impact) cannot exceed certain limits. There are minor differences between the clay verification methods and the BFS requirements used by the NU standard and the DOD specification, although the two are essentially equivalent (NIJ allows a BFS up to 44 millimeters, while DOD allows up to 43 millimeters).

Considering these points, one can conclude that the DOD requirements are more stringent than the NIJ level IV performance requirement.

QUESTIONS SUBMITTED BY MR. CONAWAY

Mr. CONAWAY. The Government solicits proposals from potential offerors through issuance of a solicitation. Can you please explain why the Request for Proposal in dealing with body armour was strictly narrowed as to disqualify flexible vests?

General THOMPSON and General BROWN. The U.S. Army publicly announces body armor solicitations to meet U.S. Army requirements. Since the start of Operation Iraqi Freedom, the U.S. Army has publicly announced three body armor solicitations. All vendors are provided the opportunity to submit a bid for their flexible body armor system; however none were received by the U.S. Army. In the recent U.S. Army body armor solicitation, a flexible body armor contract line item (CLIN) was added to the Request for Proposal (RFP) to further clarify U.S. Army requirements.

Mr. CONAWAY. To your knowledge did Research and Development tests distort or contaminate the first article test?

General THOMPSON and General BROWN. No. Research and Development tests are conducted on First Article test items. The U.S. Army assesses some first article Preliminary Design (PDMs), as specified in the Request for Proposal (RFP), against certain threats or conditions for government information only, but these tests are not scored. The government reference tests do not distort or contaminate the first article test in any way.

Mr. CONAWAY. The Government solicits proposals from potential offerors through issuance of a solicitation. Can you please explain why the Request for Proposal in dealing with body armour was strictly narrowed as to disqualify flexible vests?

Mr. SMITH. Previous Request for Proposals for Enhanced Small Arms Protective Insert did not intentionally exclude flexible armor solutions. The procurement actions were intended to provide hard ceramic plates that could be inserted into existing Outer Tactical Vests and could defeat specified small arms fire threats. However, we continued to evaluate flexible armor solutions and determined that the technology was not yet mature and capable of defeating the required threat at an acceptable weight. Therefore, no flexible armor solution that supported a modular body armor concept was available.

Mr. CONAWAY. To your knowledge did Research and Development tests distort or contaminate the first article test?

Mr. SMITH. No, to my knowledge, the government-sponsored Research and Development tests did not distort or contaminate the first article test.

Mr. CONAWAY. The Government solicits proposals from potential offerors through issuance of a solicitation. Can you please explain why the Request for Proposal in dealing with body armour was strictly narrowed as to disqualify flexible vests?

Mr. SMITH. Previous Request for Proposals for Enhanced Small Arms Protective Insert did not intentionally exclude flexible armor solutions. The procurement actions were intended to provide hard ceramic plates that could be inserted into existing Outer Tactical Vests and could defeat specified small arms fire threats. However, we continued to evaluate flexible armor solutions and determined that the technology was not yet capable of defeating the required threat at an acceptable

weight and there was no flexible armor solution that supported a modular body armor concept.

Mr. CONAWAY. To your knowledge did Research and Development tests distort or contaminate the first article test?

Mr. SMITH. No.

Mr. CONAWAY. The Government solicits proposals from potential offerors through issuance of a solicitation. Can you please explain why the Request for Proposal in dealing with body armour was strictly narrowed as to disqualify flexible vests?

General THOMAS. The Request for Proposals was not narrowed to exclude flexible vests. Market research was conducted to determine sources available in the Individual Body Armor (IBA) sector to meet the requirements of deployed Air Force Office of Special Investigations (AFOSI) Special Agents performing Counterintelligence and Force Protection operations in a combat environment. The contract required IBA providing unprecedented levels of protection, range of motion, emergency release and comfort to our agents conducting operations in hostile environments. A United States Army sponsored event featured 16 different IBA manufacturers providing one hour presentations detailing the benefits/specifications of their individual IBA units. A Pinnacle representative provided a presentation at this event.

Of the 16 vendors, 5 were considered by AFOSI for further evaluation. They included: Armor Holdings, Diamondback Tactical Defense, Point Blank Body Armor, and First Choice. None of them offered products that compared (in our opinion) to the selected IBA in level of protection provided, range of motion, quick release, or total system weight. Research disclosed Air Force Special Operations Special Tactics Squadrons (STS) were also using the selected IBA. Also, deployed AFOSI leadership requested HQ AFOSI review this body armor for their personnel after data gathering within the Iraqi theater of operation. A three day examination period sponsored by HQ AFOSI for recently redeployed AFOSI personnel and Antiterrorism Specialty Team/Contingency Response Group members provided universal positive feedback on the selected IBA's comfort, mobility, and protection as compared to other vendors' IBA.

In addition to the above process, US Central Command reporting instructions dictated personnel deploying to Iraq, Afghanistan, Kuwait, and Horn of Africa be issued IBA with a minimum of Level III +/IV protection for most personnel and Enhanced Small Arms Protective Inserts (ESAPI) for career fields operating in higher threat environments. The Commander, AFOSI, specified the added protection of ESAPI plates for deployed AFOSI special agents.

Mr. CONAWAY. To your knowledge did Research and Development tests distort or contaminate the first article test?

General THOMAS. No prior tests distorted or contaminated the 13 Jun 06 standardized testing. Additionally, no first article testing occurred. AFOSI took delivery of entire order of 581 units and one of those units was used for the 13 Jun 06 testing. Testing was performed using National Institute of Justice (NIJ) Level III testing standards at an accredited independent laboratory.

Mr. CONAWAY. The Government solicits proposals from potential offerors through issuance of a solicitation. Can you please explain why the Request for Proposal in dealing with body armour was strictly narrowed as to disqualify flexible vests?

Colonel NOONAN. Request for Proposals (RFP) from the U.S. Special Operations Command (USSOCOM) are not strictly narrowed for the purpose of disqualifying flexible vests, nor are they narrowed to exclude current or emerging technologies. Our RFPs are tailored to solicit items which meet the standards outlined in the Body Armor/Load Carriage System (BALCS) requirements document, all of which require interoperability with each other. The RFP for our Releasable Body Armor Vest (armor carriers) is separate from the one for our ballistic protection (plates and soft armor) because the industry that supplies these types of end-items is substantially different from each other (especially with regard to the plate technology).

The BALCS requirement addresses the necessary modularity for Special Operations Forces (SOF) operators to up-armor to rifle protection when required, as well as down-armor when the threat is reduced, or the environmental or mission situation dictates the need. This integration enables operators on the ground to tailor their system to meet specific operational requirements. All designs that meet the stated requirements will be evaluated.

Mr. CONAWAY. To your knowledge did Research and Development tests distort or contaminate the first article test?

Colonel NOONAN. Pinnacle Armor has not participated in any competitions for armor conducted by or for the U.S. Special Operations Command (USSOCOM). As a result, USSOCOM has not conducted a first article test on Dragon Skin Armor.

Mr. CONAWAY. The Government solicits proposals from potential offerors through issuance of a solicitation. Can you please explain why the Request for Proposal in dealing with body armour was strictly narrowed as to disqualify flexible vests?

Dr. MORGAN. This question does not pertain to the Department of Justice. The Department does not solicit proposals for the procurement of body armor. The body armor standard and compliance testing program of the Department of Justice's National Institute of Justice does not specify armor design, but leaves that up to the body armor manufacturer. The purpose of the standard and compliance testing program is to evaluate the armor's performance, regardless of the manufacturer's design.

Mr. CONAWAY. To your knowledge did Research and Development tests distort or contaminate the first article test?

Dr. MORGAN. This question does not pertain to the Department of Justice. That testing was not performed by us or through our program.

QUESTIONS SUBMITTED BY MR. THORNBERRY

Mr. THORNBERRY. Has the Department of Defense conducted any research into additional body armor components specifically aimed at upper limb (arm and leg above the joint) protection? a. If so, what are the results of such research? b. Has there been any research into whether amputees enjoy greater mobility/dexterity if upper limbs are preserved and prosthetic devices are used only for the lower limbs.

General THOMPSON. The Department of Defense has conducted research into additional body armor components specifically aimed at upper limb (arm and leg above the joint) protection. a. Speaking specifically for the Army, the Natick Soldier Research, Development and Engineering Center (NSRDEC) has worked to augment the Interceptor Body Armor (TBA) currently used by Warfighters, with add-on armor components within the Future Force Warrior Advanced Technology Demonstration. These up-armor options include ballistic inserts for chassis, groin, collar, leg, and shoulder panels. Results of the efforts and assessments to date have been promising and testing will continue. b. The Army has not conducted any research for the specific purpose of determining whether preservation of amputees' upper limbs results in great mobility or dexterity.

Mr. THORNBERRY. Has the Department of Defense conducted any research into additional body armor components specifically aimed at upper limb (arm and leg above the joint) protection? a. If so, what are the results of such research? b. Has there been any research into whether amputees enjoy greater mobility/dexterity if upper limbs are preserved and prosthetic devices are used only for the lower limbs.

Colonel SMITH. The Marine Corps has conducted research on additional body armor components aimed at upper limb protection for the arms and legs.

A. The Marine Corps has fielded the QuadGuard (QG) system. The QuadGuard system was designed to provide ballistic protection for arms and legs in response to blast weapon threats and combat casualty trends in OIF. It is specifically intended to protect a Marine's arms and legs from IED fragmentation threats when serving as gunners on convoy duty and to integrate with other personal ballistic protection equipment, to include the Outer Tactical Vest (OTV), Enhanced Small Arms Protective Insert (ESAPI) and the Lightweight Helmet (LWH).

B. The Marine Corps has not conducted any research for the specific purpose of determining whether preservation of amputees? upper limbs results in great mobility or dexterity.

QUESTIONS SUBMITTED BY MR. ROSS

Mr. ROSS. I would first like to thank the Committee and Chairman Skelton for allowing me to participate in today's hearing on this important topic. This issue was first brought to my attention by one of my constituents, Mr. John Grant, whose son serves in the Arkansas National Guard and has already served one tour of duty in Iraq and expects to be deployed again soon. Mr. Grant's son is part of the Arkansas Army National Guard's 39th Infantry Brigade, which was recently informed that they could be deployed to Iraq by the end of the year and my only concern in this hearings is to ensure that the U.S. Army is providing those young men and women with the most technologically advanced and effective body armor available. Question for Brigadier General Mark Brown: General Brown, while you contend that the Army currently provides our troops with the absolute best body armor available, it is clear that some disagree with you, including some parents of those serving and some troops themselves. However, the Army's Safety of Use Message prevents these troops from wearing any other body armor than what is provided to them by the

U.S. Army. As you know, in 2005, due to reports of equipment shortages, some troops and their families purchased personal equipment at their own expense. As a result, Congress enacted legislation that that would reimburse members of the Armed Forces who had to purchase certain personal items, including body armor. In the National Defense Authorization Act for FY 2005, Congress adopted Sections 304 and 351, which allowed reimbursement to members of the Armed Forces who purchased protective body armor and directed the Secretary of Defense to establish equipment reimbursement policy for soldiers, sailors, airmen, and marines who, due to equipment shortages, had to purchase their own personal protective gear. However, months later, the Army issued a "Safety of Use Message," in which they instructed all commanders to ensure that only IBA is used by soldiers and that all other body armor should be immediately replaced with IBA. The directive specifically states, "In its current state of development, Dragon Skin's capabilities do not meet Army requirements . . . Dragon Skin has not been certified by the Army for protection against several small arms threats being encountered in Iraq and Afghanistan today." As a result, the Army's safety of use message is essentially denying our troops the option to protect themselves with body armor, which some believe, is more effective than the standard issued IBA. therefore, my questions to you is this: Will the Army lift or rescind the safety of use message to allow those troops who believe that other body armor, such as dragon skin, is superior, to be able to use it to protect themselves.

General BROWN. The U.S. Army has a current Safety of Use Message (SOUM) dated March 17, 2006 specifying that Soldiers are only authorized to wear Interceptor Body Armor (IBA). The decision to publish the SOUM was to inform Soldiers that commercial body armor products, not certified by the U.S. Army, are unsafe and could cause death or serious injury.

Mr. ROSS. Would you agree to conduct an independent, unbiased test of the two body armors, which is what many of us in Congress have been asking for all along? And if Dragon Skin performed just as well or better than the current body armor, would the Army allow our troops to use it?

General BROWN. The U.S. Army tests against requirements and will not do a comparative test of the two body armor systems. The U.S. Army has agreed for the Office of the Secretary of Defense, Directorate of Operational Test and Evaluation Command to provide oversight in testing Pinnacle Armor Dragon Skin, if Pinnacle Armor submits proposal in the U.S. Army's current body armor solicitation number W91CRB07R0041, posted on Federal Business Opportunities (FedBizOpps) on May 27, 2007 with a closing date of July 27, 2007 and the requisite number of Preliminary Design Models for testing. If Dragon Skin meets U.S. Army body armor requirements, the U.S. Army will evaluate their proposal against the requirements of the solicitation.

QUESTIONS SUBMITTED BY MS. DAVIS OF CALIFORNIA

Ms. DAVIS OF CALIFORNIA. If I could follow up because the Oversight and Investigations Subcommittee is looking at the Iraqi army, is that body armor that we had used before; or where is that made and what do you know about that?

General THOMPSON. [The information referred to was not available at the time of printing].

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