

**Statement by
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**Before The
Senate Armed Services Committee
Subcommittee on Emerging Threats and Capabilities**

**Improved Management of Department of Defense
Test and Evaluation Facilities**

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I am pleased to have this opportunity to discuss the proposed Improved Management of Department of Defense Test and Evaluation Facilities Legislation that implements major Defense Science Board (DSB) recommendations with respect to test and evaluation (T&E). Two recent DSB reports on T&E, one in September 1999 and another – which your committee directed - in December 2000, made a number of recommendations for improving the Department's T&E programs. As you no doubt know, I served on both of these DSB Panels. But I appear here today, not as a member of either of those panels, but as the Department's Director, Operational Test and Evaluation (DOT&E), a position for which this Committee honored me with confirmation nearly a year ago. I must admit that never in my wildest dreams did I believe, as I participated in those two DSB task forces, that I would have the opportunity to implement those recommendations.

You have asked me to provide an assessment of the proposed legislation, the current state of the Department's test and evaluation facilities, the findings of the DSB task force report and my annual report, and any other recommendations to address the problems identified by the DSB task force or my annual report.

While I have some specific comments to make concerning the proposed legislation, with your forbearance, I would first like to briefly review what has been accomplished since July of last year when I was confirmed, with respect to the major recommendations of December 2000 DSB Report.

That report in essence covered five major areas:

1. The Value of Testing
2. Management of T&E Resources
3. The Quality of Testing
4. Specific T&E Investments
5. Use of Training Facilities/Exercises for T&E Events

In all, there were 25 recommendations made with respect to those topics. I have, within my role as DOT&E, been able to address 16 of these during this past year – some with more success, some with less, and some with no success. The other nine lay outside my area of responsibility. Let me briefly cover some of the steps we have taken to address some of these recommendations.

The Value of Testing

The value of testing may seem like a strange first topic for the DSB. It should be obvious to everyone that the Department's goal is to field weapons that work, and that testing is invaluable as a design tool, a means for verifying performance, and ultimately confirming the operational effectiveness and suitability of those weapons. But I'm concerned that the current funding structure works against adequate testing. Because of the way testing is currently planned and funded, articulating its value has become critical to the survival of the ranges and adequate test and evaluation capabilities. As more and more of the cost of tests and the cost of the ranges are being charged directly to programs, the ranges find themselves having to "sell" their capability to program managers.

As test range overhead and maintenance costs have shifted to the individual acquisition programs, the cost of testing to program managers has risen. Thus, a program manager who chooses to go to a specific range for testing is charged not just for the cost of the test, but also for a large fraction of the upkeep and maintenance costs of that range. Needless to say, program offices are not anxious to pay for more than the direct cost of their testing, and I don't blame them. Unfortunately, too often program offices tend to avoid testing under these circumstances. This is especially true of developmental testing, where the record shows that we have brought into operational test many systems before they were ready. The latest Army estimate is that 75 per cent of the systems fail to meet even 50 per cent of their reliability requirement in their operational tests.

I have heard program managers say: "A dollar spent on testing is a dollar spent looking for trouble." Under the current funding structure, one can see why "articulating the value of testing" becomes necessary for the ranges. Unfortunately, the ranges have

not been good at it. Government weapons programs do not have the same market-created measures as in the private sector to demonstrate the value of testing such as warranties, recalls, and class action law suits that are real in the private sector and that provide a cost risk to industry which testing helps reduce.

My office has been working with the Army test community on an effort that develops an approach to express the return on investment in testing for program managers. These approaches include quantifying the cost benefit to finding failure modes early to avoid retrofits and the life cycle cost benefit from improved reliability when the reliability testing is robust. We have also found interest from and are utilizing the professional testing organization, the International Test and Evaluation Association, which this year will sponsor two symposia with the theme “The Value of Testing.”

The Quality of Testing

The DSB found that “Testing is not being done adequately.” The quality of testing can suffer when testing is avoided, when adequate capabilities to test don’t exist, or when the testing is not funded properly in either magnitude or phasing.

The DSB found existing policies that were being used to avoid or to defer some testing and (more importantly) to avoid evaluation. I sent a memorandum to the Services on this, asking them to cease the unilateral waiving of requirements, and requiring that all operational requirements, be part of the evaluation. The specific policy most obvious was a Navy policy that allowed waivers to test and evaluation. There has been real evidence of change in specific programs.

Where adequate test capabilities don’t exist, they need to be developed. The Central Test and Evaluation Investment Program (CTEIP) is part of my responsibility as DOT&E. CTEIP has a number of programs aimed at developing and fielding needed improvements to our test capabilities. I’ll mention some of these later in the context of the DSB’s recommendations for specific investments, some of which I have been able to fund with the limited CTEIP budget and other funds available to me.

The last threat to the quality of government T&E, discussed by the DSB, is funding. The DSB considered the magnitude of the funding allocated to T&E by the Services as well as its phasing. The DSB recommended a “reform of the acquisition process in order to support the adequate and robust T&E of new weapons systems that work the first time, all the time.” By phasing I mean that developmental testing is not supported well enough or early enough. Hence, systems get into operational tests with too many problems. This may sound as if it is a developmental test problem. It is in part. But as I said before, one significant root cause of the problem is “how the tests are funded.” The funding structure has to change to solve the problem.

Specific T&E Investments

The DSB “found the state of the infrastructure – to include physical plant, range real estate, instrumentation, data reduction and analysis capabilities, targets, personnel, among other facets of test planning and conduct – in need of near-term investment and high-level emphasis...” Three areas identified – and they were but examples, and not a complete list – were frequency management, embedded instrumentation, and more realistic targets.

Frequency Management:

With the resources at my disposal, I have been able to invest in systems for Advanced Range Telemetry (bandwidth efficient instrumentation), a Joint Advanced Missile Instrumentation (a spectrum efficient GPS [Global Positioning System] hybrid system) and an Enhanced Range Application Program (a flexible data link to support T&E and Training). This last project is an example of how the test and training communities can position themselves, with respect to instrumentation, to work together more closely. This project also provides a concrete initiative to begin to implement improvement in the fifth and last area discussed by the DSB.

Embedded Instrumentation:

With respect to embedded instrumentation, we planned to initiate projects to pursue embedded instrumentation enabling technologies, but funding reductions in our testing technology program last year forced us to postpone project initiation.

Subsequent to the DSB, the Department has rewritten the Acquisition Regulations. One section in the regulations that is getting attention is embedded instrumentation. The current regulation includes a requirement for the program manager to consider embedded instrumentation. The Department's Business Improvement Council is considering an initiative that would require the program manager to evaluate embedded instrumentation in the analysis of alternatives. If embedded instrumentation promises a cost benefit over the life cycle, it would become a requirement for the system. I note that the DSB came to its conclusions on embedded instrumentation as it was considering the connection between testing and training. Embedding instrumentation could make possible a better link between testing and training.

Realistic Targets:

Target problems remain a very serious impediment to realistic testing (and training for that matter). The Navy needs a self-defense target ship to permit us to adequately test ship defense systems. Our missile defense programs need more realistic targets; the target drone situation for air-to-air missiles testing and training continues to worsen. These aerial targets are needed for a large number of programs. Unfortunately again, the way these programs are funded has had a negative effect. The first program manager who admits he needs these assets will be the one to bear the major part of their cost.

As I stated earlier, I have addressed some 16 of the 25 recommendations found in the DSB report in my first months in office. I would say that we have made progress on 13 of the 16. Let me now turn to the recommendations that were not implemented. They centered on management of T&E resources.

Management of T&E Resources

The DSB – as part of its response to this committee - recommended that DoD create a “Test and Evaluation Resource Enterprise.” As envisioned by the task force, the Enterprise would (1) fund and manage the DoD T&E organizations, workforce, and infrastructure, (2) be at the OSD level under the Director, Operational Test and Evaluation, (3) be funded by transferring the appropriate Military Service’s funding for investment, operations, and maintenance of Major Range and Test Facilities Base (MRTFB) test resources and facilities to the Enterprise, and (4) allow the operations of the test facilities to remain under Service control.

Defense plans for FY 2004 include two actions that bear on efforts to improve T&E policies, procedures, and infrastructure. We are called upon to provide by this fall an assessment of how best to make the ranges able to support affordable, adequate testing. We are further asked for a review of what changes are needed to harmonize the Department’s new acquisition strategies with testing policy and procedures.

Both aspects of the guidance are consistent with the findings of the DSB and should lead to consideration of many of the same topics advanced in the proposed legislation because we recognize that current funding policies and structure can work against adequate testing.

The development of a strategic plan for the maintenance and modernization of our T&E infrastructure is a much-needed step in guiding our efforts to provide a robust T&E capability for the future. There may be a number of ways to implement such a plan. Among other things, it would require us to reconcile testing methodologies between the Services.

For example, this year we examined two weapons test plans by different Services against the same intended target set. One weapon system was to be tested on an Army range against a moving column of remotely controlled armored vehicles with realistic countermeasures and with the potential for dust and obscuration that movement brings.

The other system was to be tested at an Air Force range against a static array of hulks with hot plates that were to simulate the signature of hot vehicles. Clearly a more balanced strategic view would preclude such inequalities.

Today these inequities surface on a case-by-case basis, usually after the Services have done their planning and often only during the operational test phase. Turning around such planning at that point is neither streamlined nor efficient. Hopefully, a well-done strategic plan would change that.

Further, I cannot imagine a strategic plan that did not bring the test ranges in line with Sec. 907 of the Strom Thurmond National Defense Authorization Act for Fiscal Year 1999, which aimed at cost-based management. In that sense, the strategic plan would address the DSB recommendation for a common financial management system.

Finally, I cannot imagine a strategic plan that did not address much needed improvements in the T&E workforce, which was yet another DSB recommendation.

The second planning item calls for streamlining T&E to match the goals of streamlined acquisition. There are those who, after observing DoD programs for the last dozen or so years, might believe that “streamlining T&E” is a code-word for “test less.” I do not agree with that assertion. However, in order to streamline, I believe we will have to address increasing the tempo with which we conduct tests and analyze the results. Currently, it’s almost as if the schedules at the ranges depend on systems not being ready for test. In fact, only about 40 per cent of tests start on time because the systems are not ready. As I have said before, Lord knows what would happen if all the programs that claimed to be ready for testing in 2002 actually showed up for testing. If the latest acquisition initiatives deliver what they hope for, then a greater fraction of programs should be ready for testing on or near their schedules. In this respect, I fear the T&E community might not be prepared for success in acquisition reform. That means the ranges will have to increase their capacity or improve their responsiveness. Right now the Navy has had to pause AIM-9X testing in part because the test infrastructure at the

Navy's test site cannot keep up with the demands of that one test. In the fall, there are fifteen tests scheduled for that one site.

In some cases, such as the F-22, the inability of the test infrastructure to maintain a high tempo of testing, to surge when needed, may be slowing down the progress of the program. AIM-9X testing is suffering because U.S. Navy and U.S. Air Force QF-4s and their ranges are not interoperable. We have also seen delays at the Army's White Sands Missile Range due to critical infrastructure staffing shortfalls.

Many of the items in the proposed legislation would likely be addressed when future Defense plans are implemented. So what we may have here is a difference in the schedule for transformation, not necessarily one of different goals. Addressing an issue does not necessarily mean the Department would come up with a solution, much less one that matches the DSB or the proposed legislation which, I have said, follows the DSB recommendations very closely. Nevertheless, the direction the Department is taking is an acknowledgement that there is a problem and improvement is necessary. You have my commitment that I will press to find an appropriate solution.

Let me now comment on the proposed legislation. First, we recognize that it is crafted to fully implement the recommendations of the Defense Science Board task force. I can offer you a few observations based on my personal experience.

One problem area that I can point to is the effect the transfer will have on the Central Test and Evaluation Investment Program. The DSB used CTEIP as the model for organization and process. However, the CTEIP was established to develop tools needed for T&E. It would be better to keep large-scale operational funds separate from development of test equipment.

1. Section (Sec 236 [SCO 02.360]) allows deviation from the approved Test and Evaluation Master Plan (TEMP) with either Secretary of Defense, Deputy

Secretary of Defense, or my approval followed by notification to this committee within 30 days.

On the surface, this seems like a good thing. Any substantial deviation from a master plan ought to be reviewed carefully, at least by my office and that of the Under Secretary of Defense for Acquisition, Technology, and Logistics (AT&L) to ensure that test adequacy is not jeopardized. So first, there should be a requirement to notify our offices of any departures.

On the other hand, the acquisition regulations encourage tailoring. In that context, such tailoring may include no longer producing TEMPs as we know them. For example, the Air Force has briefed my staff on plans to forego TEMPs as such, and replace them with a combined acquisition strategy and testing document. I am concerned that, if deviations must be reported, the documents themselves will trend to less and less detail making deviations more difficult to detect.

2. The legislation requires a report and plan by the Under Secretary of Defense (AT&L) on improving the T&E workforce.

This section recognizes that most of the individuals doing testing and evaluation in the Department are part of the Acquisition Corps. I know that some Senators and Representatives call the Acquisition Workforce the “Pentagon buyers.” and they are constantly pushing the Department to reduce their numbers. So you have put the Under Secretary of Defense (AT&L) in a tough spot (Not that he isn’t in a tough enough spot already). But the legislation recognizes the fact that most tester positions are currently under the responsibility of the Acquisition Corps.

3. The final section I comment on (Sec 231, [SCO 02.360]) suggests the Under Secretary of Defense (AT&L) has responsibility to designate which ranges

comprise the MRTFB (Major Range and Test Facilities Base.) For the last three years, that responsibility has been with my office. The Deputy Secretary signed the new 3200.11 Directive formalizing that responsibility two weeks ago.

In summary then, I can say that the Department largely supports the thrust of the DSB report. We have already had some success in implementing the recommendations of that report. This legislation seeks to accelerate that implementation faster and more thoroughly than what we have accomplished and planned so far. A review of the legislation shows it to match the DSB recommendations in many respects. However, the legislation could cause us problems. The Department desires the opportunity to discuss the proposed Senate legislative objectives internally as well as with your committee. We believe that together we can develop a plan, potentially including a legislative proposal that addresses the recommendations in an effective manner.

I want to thank you for your kind attention to my remarks. I believe testing is a critical part of what we must do for our soldiers, sailors, airmen, and Marines. Thank you.