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AIAA

American Institute of Aeronautics and Astronautics

BRAC Commission

AUG 18 2005

Received

August 12, 2005

The Honorable Philip Coyle
2005 Defense Base Closure and Realignment Commission
2521 S. Clark St. Ste. 600
Arlington, VA 22202

Sir,

The Survivability Technical Committee of the AIAA opposes the 2005 Defense Base Realignment and Closure (BRAC) Commission recommendation to *"Realign Wright Patterson Air Force Base, OH, by relocating fixed wing related Live Fire Test and Evaluation to Naval Air Weapons Station China Lake, CA."*

The AIAA strives to further technology for aircraft and their combat survivability, which is the primary mission of the AIAA Survivability Technical Committee (AIAA STC). It is our position that the re-alignment (i.e. elimination) of the Live Fire Test and Evaluation capability at Wright Patterson Air Force Base (WPAFB) does not meet the guidelines and objectives as defined within the BRAC documentation. This re-alignment will have a negative impact on the future of aircraft survivability test, evaluation, and acquisition programs within the Air Force and the Department of Defense. Additionally, it will negatively impact ongoing and future research and development programs. As discussed in the attachment, it is the opinion of the AIAA STC that the BRAC decision will be counterproductive in that it:

1. Eliminates healthy competition
2. Increases aircraft acquisition cost both near and long term
3. Significantly reduces intellectual capital and expertise
4. Decreases efficiency
5. Increases aircraft program acquisition risk

The AIAA Survivability Technical Committee respectfully requests the BRAC Commission reconsider the subject realignment.

Respectfully,

Mr. Michael Weisenbach
Chairman, STC

Mr. Ronald Dexter
Chair-Elect, STC

Mr. Steve Whitehouse
Secretary, STC

Dr. Joel Williamsen
Past Chairman, STC

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AIAA Survivability Technical Committee Position Paper
Base Realignment and Closure Commission Recommended Realignment of the Aircraft Live Fire Test Capabilities

Discussion

The subject BRAC recommendation of concern is the realignment of Wright Patterson Air Force Base (WPAFB), OH, by relocating fixed wing related Live Fire Test and Evaluation (LFT&E) to the Naval Air Warfare Center Weapons Division (NAWCWD) China Lake, CA". A pertinent section of the recommendation is to:

> *"Realign Wright Patterson Air Force Base, OH, by relocating fixed wing related Live Fire Test and Evaluation to Naval Air Weapons Station China Lake, CA.... The consolidation of all Fixed Wing Air Platform Survivability Live Fire T&E at China Lake is driven by the inefficiencies that currently exist between the two sites (Wright Patterson AFB and China Lake), and the potential savings afforded by establishing a single live fire test range for fixed wing air platforms. China Lake has this capability and has been doing similar work related to weapons lethality for many years. This action will increase efficiency by reducing overall manpower requirements while also reducing redundancies that exist across the Live Fire Testing domain."*

This realignment will not achieve the BRAC objectives. Instead, the BRAC recommendation for relocation and consolidation is likely to:

1. Eliminate healthy competition
2. Increase aircraft acquisition cost both near and long term
3. Significantly reduce intellectual capital and expertise
4. Decrease efficiency
5. Increase aircraft program acquisition risk

1. Relocation and Consolidation <u>Eliminates</u> Healthy <u>Competition</u>

The recommendation to combine facilities conflicts with the BRAC overarching strategic framework, which states, "maintain competition by retaining at least two geographically separated sites".

The WPAFB test facility continues to support joint service test and evaluation activities particularly with efforts for the Joint Aircraft Survivability Program Office (JASPO) and joint acquisition programs such as the Joint Strike Fighter program to name just a few. The "competition" for these type of test programs results in each facility (WPAFB and NAWCWD) constantly pushing and developing capabilities to finely develop their engineering and support staff, generate new and creative data measurement equipment, devise unique data processing procedures, generate new instrumentation techniques, etc.

Both facilities are industrially funded and/or reimbursable. Therefore, this constant drive for technology and capability development is due to a large extent for developing in-house capabilities that can be "marketed". If the WPAFB LFT&E were transferred to NAWCWD as recommended by the BRAC, this competition would no longer provide a forcing function to continue technology advancements and innovations. The following table highlights some of the recent technology advancements at WPAFB.

System Supported	Innovative Technology Developed at WPAFB Test Range
F/A-22	Most complex and unique wing loading leveraging AFRL developed structural measurement devices. Local Aircraft Battle Damage and Repair (ABDR) teams provided training on ABDR process using this test and asset.
F/A-22	Demonstrated engine fire suppression system effectiveness with combat damage. Invented a new method to strip airflow boundary layer to properly flow air into engine nacelle vents.
R&D	Developed capability to conduct MANPAD launches, flight, fuzing, and aircraft impact tests in a controlled environment. Method will be applied to a large engine. Also developed a unique analytical method using Commercial Off-The-Shelf (COTS) structural response model to simulate MANPADS impacts. This permits excursions of test data.
R&D	Dynamic Structural Joint Test (Ram Gun) – Developed a new method to evaluate structural members under loads induced by a ballistic weapon. Simulates ballistic testing but in a controlled laboratory type environment at significantly less cost thereby permitting multiple tests.
R&D	Developed an aircraft fuel tank motion simulator capable of six degrees of freedom, including vibration effects, to investigate fuel ullage protection and motions of most aircraft in the government's inventory. Applicable to commercial aircraft as well.

2. Relocation and Consolidation <u>Increases</u> Aircraft Acquisition <u>Cost</u> both Near and Long Term

Facility Upgrade Cost: In the near term, aircraft development programs—and the taxpayer—will ultimately pay the price for upgrading the entire NAWCWD test facility and personnel to meet capacity requirements. For example, all fixed wing testing requires sufficient airflow, to simulate flight, when the aircraft test article is in a ground fixed position. The airflow facility at WPAFB (construction was mostly funded by AF programs) is near 100% usage in the near term and scheduled long term. The high usage proves customer satisfaction, and the large amount of testing that would need to be absorbed at NAWCWD. For NAWCWD to absorb this workload, their airflow facility will be forced to

grow in terms of hardware, software, and personnel. Hardware and software upgrades will need to be funded and will come in part from AF acquisition programs..... again. The upgrade costs would be in the multi-millions of dollars.

The following table presents a summary of current and planned testing at WPAFB.

Current Customers	Scheduled Through	Budget ($M)
F-35	2013	~20.00
CSAR-X (formerly PRV)	2011	TBD
A-10	TBD	TBD
C-5 RERP	2008	12.50
C-130 AMP	2008	7.58
CF-6 vs. MANPADS	2007	3.97
B-747 Wing	2007	0.70
CH-47 Halon Replacement	2007	0.60
C-130 J	2006	2.60
C-17 Tail	2006	0.50
A-10 Dry Bay Foam	2006	0.31
A-10 Fuselage	2006	0.31
C-17 LOX	2005	0.60

Increased Cost due to Lack of Competition: Monopolies are not accepted in the commercial business world and therefore should not be accepted within the Department of Defense. By eliminating the only competitor for LFT&E fixed wing acquisition, and ultimately related testing efforts outside of LFT&E, the DoD community would end up with a "one supplier in the world" situation. The Air Force and Prime Contractors would be solely reliant upon NAWCWD test capabilities, schedule availability, and personnel expertise. For example, the F-35 LFT&E program uses both the WPAFB and the NAWCWD test facility. They specifically select which facility conducts which test based on capability and availability to balance technical requirements with schedule and cost.

3. Relocation and Consolidation Significantly Reduces Intellectual Capital and Expertise

Although this is difficult to quantify, the potential loss of unique and highly skilled civilian engineering staff, test range support contractors, and contractor engineering analysis support personnel will happen. It is not likely that WPAFB test civilian staff will move to NAWCWD, but are likely to migrate into new careers within the large WPAFB work force in areas other than ballistic survivability. This potentially results in a loss of up to 50% of the DoD civilian fixed wing LFT&E and vulnerability reduction expertise.

4. Relocation and Consolidation Decreases Efficiency

The 46th TW detachment at WPAFB, who runs the test facility, also manages several other very important functions within DoD and more specifically within the Survivability and Vulnerability community. These essential functions are also in jeopardy if the test facility is relocated and personnel disperse into other civilian positions.

- The 46th TW provides the COR and operating oversight for the Survivability Vulnerability Information Analysis Center (SURVIAC). SURVIAC is the primary repository for all survivability related combat data, test data, and technology reports. SURVIAC is not relocating to NAWCWD.
- The jointly operated Propulsion Directorates Aircraft Engine Nacelle Test Facility is not moving. Key personnel may be lost.
- The WPAFB facility conducts vulnerability reduction R&D testing as an integral portion of the aircraft engineering design process. Relocation of test equipment and test facilities to a remote location will decrease efficiency, and increase costs, for AF R&D test programs.
- The WPAFB facility also conducts characterization and validation tests in support of modeling and simulation development and execution. Relocation of test equipment to a remote location will decrease efficiency and increase cost for these critical tests to be conducted.
- History has shown that test events don't always happen as scheduled. Given the fact that nearly a full travel day is required from Dayton to NAWCWD and a full travel day returning it may be very inefficient for both engineers and program office support personnel attend LFT&E events conducted at NAWCWD. This is especially true when test events have to be cancelled or delayed at the last minute. Continued testing at WPAFB permits the AF acquisition personnel (those in the Aeronautical System Center, the System Program Offices, and local support contractors) the efficient ability to attend and support test events within a few hours notice, or, continue other work if test events are delayed rather than spend unproductive time traveling long distances.

5. Relocation and Consolidation Increases Aircraft Program Acquisition Risk

The BRAC Commission did not establish guidelines related to risk. However, a risk assessment appears to be highly relevant given the DoD will be completely reliant upon NAWCWD to conduct DoD R&D ballistic tests and congressionally mandated LFT&E for fixed wing aircraft.

- Scheduling and prioritization of testing is of concern and could pose a significant risk.
- The following table highlights a few of the upcoming DoD programs that may be affected. These programs are listed within the Director, Operational Test and Evaluation (DOT&E) annual list of programs which are subject to OSD LFT&E oversight, as required by Department of Defense Instruction (DoDI) 5000.2.

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PROGRAM NAME	LFT&E
B-52 Re-Engining Program	X
B-52 Stand-Off Jammer (SOJ)	X
C-5 Reliability and Re-engineering Program (RERP)	X
C-17A - Globemaster III Advance Cargo Aircraft	X
C-130 AMP – C-130 Avionics Modernization Program	X
C-130J Hercules Cargo Aircraft (All Variants)	X
F/A-22 – Advanced Tactical Fighter	X
F-35 Joint Strike Fighter (JSF)	X
Personnel Recovery Vehicle (PRV)	X
ABL (currently not an acquisition program, hence not listed)	TBD
A-10 (modification program expect to be added in FY06)	TBD