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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2)				February 2004			
OPERATIONAL TEST AND EVALUATION, DEFENSE (0460) BUDGET ACTIVITY SIX		LIVE FIRE TESTING (LFT) PROGRAM ELEMENT (PE) 0605131D8Z					
\$'s in Millions	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
PE 0605131D	15.791	11.721	10.209	10.390	10.546	10.759	10.958

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION

This PE directly supports the Congressional statutory requirements for oversight of Live Fire Test and Evaluation (LFT&E). The primary objective of LFT&E is to assure that the vulnerability and survivability of Department of Defense (DoD) crew-carrying weapons platforms and the lethality of our conventional munitions are known and acceptable before entering full-rate production. LFT&E encompasses realistic tests involving actual U.S. and threat hardware or, if not available, acceptable surrogate threat hardware. The objective is to identify and correct design deficiencies early in the development process, and is required to be completed before weapons programs proceed beyond low-rate initial production. It also includes realistic modeling and simulation (M&S), to include pretest predictions, to assure the maximum benefit from the testing. The LFT&E program is essential, especially in view of the escalating costs of technologically sophisticated weapons systems.

The LFT PE also supports the DoD's Joint Live Fire (JLF) Program. JLF was begun in 1984 under an OSD charter to test fielded front-line U.S. and threat combat aircraft and armor systems for their vulnerabilities and fielded weapons, both U.S. and threat, for their lethality against their respective targets. The Congress, seeing the vulnerability and lethality issues raised by the JLF program, decided that there must be legislation to require that this realistic testing be done on new systems before they reach the field. Hence the LFT Legislation, U.S. Code, Title 10, Section 2366 was passed in 1987.

In the FY 1997 DoD Appropriations Act, the Congress appropriated an initial \$3.0M for the Live Fire Testing and Training (LFT&T) program, formalizing an important LFT&E program relationship. The funding strengthens the natural relationship between LFT activities and the modeling and simulation technologies being developed to support the Services' testing and training activities. Through FY 2004 Congress added a total of \$33.0M to fund projects under the LFT&T initiative. In FY 2003, the Congress added \$1.8M to continue the augmented reality based fire fighting trainer program, the concept for which was demonstrated under LFT&T.

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This Research Category 6.5 PE supports LFT&E management activities for the oversight of RDT&E of new systems, as well as RDT&E of fielded systems. It also includes funds to obtain Federally Funded Research and Development Center (FFRDC) support in performing the described tasks, as well as funds to perform official travel in support of its activities.

Program Accomplishments and Plans:

FY 2003 Accomplishments:

Major T&E Programs:

- Worked with Services, providing oversight of Live Fire Test and Evaluation activities on:
 - Advanced Medium Air-to-Air Missile (AMRAAM)
 - Air Force Tanker Replacement Program
 - B-1B Lancer Conventional Mission Upgrade Program (CMUP)
 - C-5 Reliability and Reengineering Program
 - C-17 Globemaster III Advanced Cargo Aircraft
 - C-130 Avionics Modernization Program
 - C-130J Hercules Cargo Aircraft
 - Combat Search and Rescue (CSAR) replacement
 - F/A-22 Raptor
 - Joint Air-Surface Standoff Missile (JASSM)
 - Small Diameter Bomb (SDB)
 - Abrams Tank Upgrade
 - Blackhawk (UH-60M) Upgrade
 - Bradley Fighting Vehicle System Upgrade
 - CH-47F Improved Cargo Helicopter Upgrade
 - RAH-66 Comanche Reconnaissance Attack Helicopter
 - Common Missile
 - Crusader
 - Excalibur (155mm round)
 - Future Combat System
 - Guided Multiple Launch Rocket System
 - Javelin Advanced Anti-tank Weapon System
 - OH-58D Kiowa Warrior

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- Line-of-Sight Anti-Tank (LOSAT) Missile
- AH-64D Longbow Apache
- Longbow Hellfire Missile
- M829E3 120mm round
- Objective Crew Served Weapon System (OCSWS), XM307
- Objective Individual Combat Weapon System (OICWS)
- Patriot Advanced Capability 3 (PAC-3)
- Precision Guided Mortar Munitions
- Sensor Fuzed Munition
- Stinger Reprogrammable Microprocessor (RMP) Missile
- Stryker Armored Vehicle
- Surface Launched AMRAAM (SLAMRAAM)
- Advanced Amphibious Assault Vehicle (AAAV)
- Advanced Seal Delivery System (ASDS)
- AIM-9X Sidewinder Upgrade
- Airborne Mine Neutralization System (AMNS)
- Cruiser Conversion
- CVN(X) Next Generations Nuclear Attack Carrier Ship Class
- DDG-51 Guided Missile Destroyer
- DD(X) Future Surface Combatant Program
- E/A-18G
- Evolved Sea Sparrow Missile (ESSM)
- Extended Range Active Missile (ERAM)
- Extended Range Guided Munition (ERGM)
- F/A-18E/F Hornet Naval Strike Fighter
- F 35 Joint Strike Fighter
- Joint Maritime Command and Control Capability (JCC(X)) Ship Class
- Joint Standoff Weapon (JSOW) (Baseline, BLU-108, and Unitary variants)
- KC-130J aircraft
- LHA(R) New Amphibious Assault Ship
- LHD1 Amphibious Assault Ship
- Littoral Combatant Ship

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- LPD-17 Amphibious Assault Ship
- MH-60R Multi-mission Helicopter
- MH-60S Utility Helicopters
- MK-48 ADCAP torpedo
- Multi-mission Maritime Aircraft (MMA)
- Maritime Prepositioning Force (Future)
- Naval Integrated Fire Control-Counter Air
- Rapid Airborne Mine Clearance System (RAMICS)
- Rolling Airframe Missile
- Surface Electronic Warfare Improvement Program
- SSGN Trident conversion
- SSN-21 SEAWOLF / AN/BSY-2
- SSN-23 JIMMY CARTER
- SSN-774 VIRGINIA Class
- Standoff Land Attack Missile-Expanded Response (SLAM-ER)
- Strategic Sealift Program (SSP) Ship Class
- T-AKE LEWIS & CLARK Class of Auxiliary Dry Cargo Ships
- T-AOE(X) Triple Product Station Ships
- Tactical Tomahawk Missile
- USMC H-1 Upgrades (4BW/4BN)
- V-22 Osprey Joint Advanced Vertical Lift Aircraft
- VXX Presidential Replacement Helicopter Program
- Ballistic Missile Defense Program

JLF Programs:

- Completed tests of the:
 - CH-47D Main Rotor Blade
 - AH-1 Vulnerability to Rocket Propelled Grenades
 - H-60 Tail Rotor Subsystem Ballistic Vulnerability
 - H-60 Engine Nacelle Ballistic Fire Suppression system
 - CH-53 Vulnerability to AAA
 - Predator wing
 - Vulnerability of externally stored explosives

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- Lethality tests against the GEODE target
- Vulnerability of Propellants
- Lethality of Explosive Formed Penetrators against Titanium armor
- Flammability Hazards aboard ships/submarines
- Weapons induced flashover

LFT&T:

- Continued efforts started in prior years on following projects:
 - Special Operations Forces Signals Training and Rehearsal System
 - Moving Weapons Platform Simulator
 - Joint Distributed Integrated Test and Training System
 - Multipurpose Terminal Control and Supporting Arms Trainer
- Initiated following projects:
 - Project Grace
 - Super Fast Assessment Strike Tool—Collateral Damage
 - Advanced Robotics Testbed
 - Objective Individual Combat Weapon Embedded Simulation, Training, and Instrumentation

Reality Fire Fighting / Homeland Security:

- Provided for further development, implementation of training system upgrades, and installation of two augmented reality based damage control and training systems. One system was installed at the Center for Naval Engineering, San Diego, and the other is to be installed at the New Hampshire Fire Academy.

Official Travel:

- Performed official travel to carry out oversight of LFT&E programs.

FY 2004 Plans :

Major T&E Programs:

- Work with Services, providing oversight of Live Fire Test and Evaluation activities on:
 - C-5 Reliability and Reengineering Program
 - C-17 Globemaster III Advanced Cargo Aircraft
 - C-130 Avionics Modernization Program
 - C-130J Hercules Cargo Aircraft
 - F/A-22 Raptor
 - Joint Air-Surface Standoff Missile (JASSM)

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- Personnel Recovery Vehicle
- Small Diameter Bomb (SDB)
- Abrams Tank Upgrade
- Army Tactical Missile System-Penetrator
- Army Theater Support Vessel
- Blackhawk (UH-60M) Upgrades
- Bradley Fighting Vehicle System Upgrade
- CH-47F Improved Cargo Helicopter Upgrade
- RAH-66 Comanche Reconnaissance Attack Helicopter
- Excalibur (Family of Precision 155mm projectiles)
- Future Combat System
- Guided Multiple Launch Rocket System
- Joint Common Missile
- OH-58D Kiowa Warrior
- Line-of-Sight Anti-Tank (LOSAT) Missile
- AH-64D Longbow Apache
- Longbow Hellfire Missile
- Medium Extended Air Defense System
- Mid Range Munitions
- Patriot Advanced Capability 3 (PAC-3)
- Precision Guided Mortar Munitions
- Stryker Armored Vehicle
- Surface Launched AMRAAM (SLAMRAAM)
- XM8 Lightweight Modular Weapon System
- XM29 Integrated Air Burst Weapon System
- XM307 Objective Crew Served Weapon System
- Advanced Seal Delivery System (ASDS)
- Affordable Weapon System
- AIM-9X Sidewinder Upgrade
- Airborne Mine Neutralization System (AMNS)
- AN/WSQ-11 Countermeasure Anti-Torpedo
- CH-53X Upgrade Program

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- Cruiser Conversion
- CVN-21 Next Generations Nuclear Attack Carrier Ship Class
- DDG-51 Guided Missile Destroyer
- DD(X) Future Surface Combatant
- E/A-18G (electronic variant of F/A-18)
- Expeditionary Fighting Vehicle
- Evolved Sea Sparrow Missile (ESSM)
- Extended Range Active Missile (ERAM)
- Extended Range Guided Munition (ERGM)
- F 35 Joint Strike Fighter
- Joint Standoff Weapon (JSOW) (Baseline, BLU-108, and Unitary variants)
- KC-130J aircraft
- Long Range Land Attack Projectile
- LHA(R) New Amphibious Assault Ship
- LHD 8 Amphibious Assault Ship
- Littoral Combatant Ship
- LPD-17 Amphibious Transport Dock
- MH-60R Multi-mission Helicopter Upgrade
- MH-60S Utility Helicopters
- MK-48 ADCAP torpedo
- Multi-mission Maritime Aircraft (MMA)
- Maritime Prepositioning Force (Future)
- Naval Integrated Fire Control-Counter Air
- Rapid Airborne Mine Clearance System (RAMICS)
- Rolling Airframe Missile
- Surface Electronic Warfare Improvement Program
- SSGN OHIO Class conversion
- SSN-21 SEAWOLF / AN/BSY-2
- SSN-23 JIMMY CARTER
- SSN-774 VIRGINIA Class Submarine
- Strategic Sealift Program (SSP) Ship Class
- T-AKE LEWIS & CLARK Class of Auxiliary Dry Cargo Ships

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- T-AOE(X) Triple Product Station Ships
- Tactical Tomahawk Missile
- USMC H-1 Upgrades (4BW/4BN)
- VXX Presidential Replacement Helicopter Program
- Ballistic Missile Defense Program

JLF Programs:

- Conduct tests of the:
 - AH-1 Vulnerability to Rocket Propelled Grenades
 - H-60 Engine Nacelle Ballistic Fire Suppression system
 - CH-53 Vulnerability to AAA
 - Vulnerability of Close Air Support aircraft to 35mm Air Burst Munition
 - Predator Systems Vulnerability
 - Chinook Fuel Feed Plumbing Armor
 - CF-6 Engine Vulnerability to MANPADS
 - UH/MH-60 Dry Bay Foam
 - Run Dry capability/Ballistic Vulnerability of UH/MH-60 Improved Gear Box
 - Joint Common Missile support against the GEODE target
 - Vulnerability of Propellants
 - Vulnerability of Lithium-Ion Battery Packs
 - Blast Effects for Comanche
 - Effects of Low Speed Rod penetration
 - Effects of Large Fragment penetration
 - Effects of High Obliquity Impact penetration
 - Shipboard Fire Hazards
 - Ship Shock testing using smaller charges

LFT&T:

- Provide for the orderly termination of all projects started in prior years due to insufficient funding.

Reality Fire Fighting Training:

- Provide for further improvements, implementation of training system upgrades, and installation of augmented reality based damage control and training systems.

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Official Travel:

- Perform official travel to carry out oversight of LFT&E program.

FY 2005 Plans :

Major T&E Programs:

- Complete LFT&E technical assessments for those systems approaching due dates for reporting to Congress
- Continue oversight of continuing lethality and vulnerability efforts on acquisition programs

JLF Programs:

- Conduct tests of fielded systems not previously tested under Air, Land, or Sea Joint Live Fire programs
- Continue tests of foreign systems acquired for exploitation
- Continue to evaluate foreign targets and munitions
- Continue to invest in development of technologies that increase test realism
- Continue to improve data base management tools

Official Travel:

- Perform official travel to carry out oversight of LFT&E program.

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B. (U) PROGRAM CHANGE SUMMARY

(\$ in Millions)	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
FY 2004 President's Budget	15.791	10.074	10.209
Current Budget Submit	15.791	11.721	10.209
Total Adjustments		1.647	
Congressional Program Reductions		(0.153)	
Congressional Rescissions			
Congressional Increases			
Reality Fire Fighting		1.800	

C. (U) OTHER PROGRAM FUNDING

NA