ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
6 - Management support	**0605605A - DOD High Energy Laser Test Facility**	**E97**

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
E97 DOD HELSTF	36145	23188	14410	17173	17622	18706	19171	Continuing	Continuing

A. Mission Description and Budget Item Justification: The High Energy Laser Systems Test Facility (HELSTF) provides a one-of-a-kind, broad based high energy laser (HEL) test and evaluation capability which directly supports testing of laser variants of the Future Combat System (FCS). Specifically, HEL weapons may be part of the Extended Area Air Defense (EAAD) system, a key component of the Objective Force supporting Full Dimensional Protection. Candidate HEL programs include Mobile Tactical High Energy Laser (MTHEL) and Solid State Heat Capacity Laser (SSHCL). HELSTF is a DoD Major Range and Test Facility Base (MRTFB) and supports Tri-Service HEL research and development, and damage, vulnerability, propagation, and lethality laser testing, and HEL weapon developmental and operational test and evaluation (T&E). The HELSTF's laser development support capabilities include a certified HEL test range, a fully integrated laser support facility, an extensive array of fully instrumented test sites, full laser meteorological support, and the only site for above-the-horizon dynamic HEL testing certified for predictive avoidance by the Laser Clearing House. HELSTF facilities include the Sea Lite Beam Director (SLBD), the Mid-Infrared Advanced Chemical Laser (MIRACL), the Laser Device Demonstration (LDD), the 10KW SSHCL testbed, and the Low Power Chemical Laser (LPCL). HELSTF supports the Pulsed Laser Vulnerability Test System and the Tactical High Energy Laser (THEL) Demonstrator. This multiple use facility supports testing of laser effects for targets ranging from material coupon testing up through full-scale flying targets. HELSTF has embarked on its own transformation to develop state-of-the-art HEL diagnostic capabilities, data reduction, and a mobile diagnostic test suite to support testing for potential HEL weapons in the Army Objective Force. This modernization will create a more efficient and versatile HEL T&E facility, which will also benefit the development and testing of other Service material solutions using HEL technologies.

FY 2001 Accomplishments:

- 16875 Performed operation, maintenance and base operations support functions in support of the Army, DoD and other agencies conducting high energy laser systems concept development studies and test and evaluation on candidate high energy laser weapons systems (THEL, its follow-on, Mobile-THEL, other laser programs). Fully integrated the 10kW SSHCL device into HELSTF testbed and conducted material coupon testing to generate a validated engineering model. Continued to support SMDC military utility analysis, continued safety control system upgrades to integrate other HEL technologies, and initiated investigation of a mobile diagnostic capability to support HEL testing on other parts of WSMR or at other DoD test facilities. Conducted a MIRACL proficiency test which supported SMDC and USAF HEL programs as adjunct tests. Conducted a variety of tracking tests with SLBD to support THEL, USAF and BMDO missions.

FY 2001 Accomplishments: (Continued)

- 19270 Continued Solid State Laser (SSL) Program - Tested laser diode pumped single subscale disk. Integrated laser diodes onto two full-scale disks. Diodes were lensed at 45 degrees in compact architecture. This limited gain system was fully characterized. Laser diodes were produced at volume and were lensed. Additional technology supporting mobilized prototype was advanced including large scale crystal development, compact pulsed power, and thermal control. $5M was used to produce the laser diodes. $3M was used by the Electro Optics Center to test and lens the laser diodes.

Total 36145

FY 2002 Planned Program

- 14570 Perform operation, maintenance and base operations support functions in support of the Army, DoD and other agencies conducting high energy laser systems concept development studies and test and evaluation on candidate high energy laser weapons systems (THEL, Mobile-THEL, Airborne Tactical Laser (ATL), (both Army and Air Force), Air Force Airborne and Space-Based Laser, Navy HEL Low Aspect Target Tracking (HEL-LATT) and other laser programs). Continue lethality testing as well as propagation experiments using the 10KW flash lamp pumped SSHCL in accordance with the lethality and propagation test program. Continue military utility analysis (to include participation in JFCOM Millennium Challenge 02), continue safety and control system upgrades to integrate other HEL technologies, and development of a mobile diagnostic capability. Conduct a variety of tracking tests with SLBD to support SMDC, USAF and MDA (formerly BMDO) missions.
- 8618 Continued Solid State Laser (SSL) Program.

Total 23188

FY 2003 Planned Program

- 14410 Perform operation, maintenance and base operations support functions in support of the Army, Department of Defense and other agencies conducting high energy laser systems concept development studies and test and evaluation on candidate high energy laser weapons systems (Mobile-THEL, Army & USAF ATL, Air Force Airborne and Space-Based Laser, Navy HEL-LATT, other laser programs). Prepare for integration of a 100KW SSHCL under development by the Army. Conduct a variety of tracking tests with SLBD to support SMDC, USAF and MDA missions.

Total 14410

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B. Program Change Summary	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	37177	14570	14356
Appropriated Value	37521	23370	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-182	0
b. SBIR / STTR	0	0	0
c. Omnibus or Other Above Threshold Reduction	-1075	0	0
d. Below Threshold Reprogramming	43	0	0
e. Rescissions	-344	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	54
Current Budget Submit (FY 2003 PB)	36145	23188	14410