

**Exhibit R-2, RDT&E Budget Item Justification**

Date: February 2004

**APPROPRIATION/BUDGET ACTIVITY**

RDT&E, Defense-Wide/Advanced Technology Development - BA 3

**R-1 ITEM NOMENCLATURE:**

Proliferation Prevention and Defeat 0603160BR

Cost (\$ in millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete
Total 0603160BR Cost	147.1	96.8	74.4	91.5	109.8	114.9	118.2	Continuing
Project BB – Small Business Innovative Research*	0	2.1	.4	.6	.7	.7	.7	Continuing
Project BI - Arms Control Technology**	42.0	5.4	6.8	5.9	18.6	21.3	21.7	Continuing
Project BJ – SOF Counterproliferation Support***	25.1	47.3	18.8	21.1	17.6	19.7	20.1	Continuing
Project BK – Counterforce	57.0	42.0	48.4	63.9	72.9	73.2	75.7	Continuing
Project BN - Unconventional Nuclear Warfare Defense	23.0	0	0	0	0	0	0	Continuing

\*In year of execution, funding executed under PE 0605502BR “Small Business Innovative Research”

\*\*FY 03-04 funding resided under PE 0603711BR “Arms Control Technology”; Project retitled to "Detection Technology" in FY05 to better define the program

\*\*\*FY03-04 funding resided under PE 0603160BR “Counterproliferation Support-Advanced Development”

**A. Mission Description and Budget Item Justification:**

The objective of this program element is to reduce opportunities for WMD proliferation and enhance capabilities for WMD defeat through advanced technology development. To accomplish this objective, Small Business Innovative Research and four project areas were developed: Arms Control Technology (retitled Detection Technology in FY 2005 to better define the program), Special Operation Forces (SOF) Counterproliferation (CP) Support, Counterforce, and Unconventional Nuclear Warfare Defense. This development supports technology requirements defined in the Joint Functional Concepts (ref CJCSI 3170.01) and the Quadrennial Defense Review (QDR) Transformational Goals.

Project BI develops technologies to monitor, detect, identify and locate strategic, conventional and improvised weapons, or their components, to support DoD requirements in the areas of international treaties and agreements, homeland security, combating terrorism and nonproliferation. Efforts under this project also support international peacekeeping and nonproliferation objectives. Current and emerging technologies are assessed to provide the basis for research and development investment decisions, to evaluate existing programs, and to provide the technical support required to make compliance judgments and assist U.S. Arms Control policy formulation and negotiating teams. Selected technologies are developed and demonstrated to support confidence building measures and nonproliferation initiatives that ensure capabilities to monitor, comply with and implement treaties and agreements when required.

Specific products under project BI include equipment and procedures for data exchanges, on-site and aerial inspections and monitoring, and off-site analysis required to meet treaty specifications and implement confidence-building measures.

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>		Date: February 2004
<b>APPROPRIATION/BUDGET ACTIVITY</b>	<b>R-1 ITEM NOMENCLATURE:</b>	
RDT&E, Defense-Wide/Advanced Technology Development - BA 3	Proliferation Prevention and Defeat	0603160BR

Project BJ provides RDT&E to support the Joint Functional Concept, Force Application, through development of SOF counterproliferation technologies. SOF technologies are focused on addressing counterproliferation of nuclear, biological, and chemical weapons and their means of delivery (NBC/M). The U.S. must be able to identify, characterize and defeat adversary's NBC/M research, production, storage, operations, support and command and control facilities while mitigating collateral hazards that would result from release and expulsion of NBC agents. The potential target set includes fixed, above ground and underground, hardened and unhardened facilities, as well as transshipment and delivery systems. To accomplish this task, SOF require improved detection and characterization of NBC/M threats.

Project BK provides RDT&E to support the Joint Functional Concept, Force Application and the QDR transformational Goal to Deny Enemy Sanctuary. The objective of this project is to develop, demonstrate and transition counterproliferation (CP) counterforce technologies to combatant commands and Services. Programs to develop, demonstrate and transition technologies are structured to exploit ongoing DoD agency, Service laboratory, and Department of Energy laboratory technology programs wherever possible, with emphasis on functional kill, hard kill and mitigating collateral effects. Potential targets include fixed, aboveground and underground, hardened and unhardened facilities, as well as related Command, Control, Communications and Intelligence (C3I) facilities, transshipment and delivery systems. The goal is rapid development and demonstration of enhanced counterforce mission capabilities that includes, but not limited to, advanced conventional and non-conventional (but non-nuclear) weapons, application of sensor technologies for weapons of mass destruction (WMD) combat assessment, and target-attack planning tools that optimize weapon and sensor employment.

Project BN provides RDT&E to address one of the most unsettling and dangerous threats-- that of nuclear terrorism using unconventional methods (i.e., delivery of an Improvised Nuclear Device (IND), Radiological Dispersal Device (RDD) or an actual nuclear weapon delivered by other than a missile or military aircraft). The Congressionally-mandated Unconventional Nuclear Warfare Defense (UNWD) program supports this effort by demonstrating an integrated nuclear warfare protection system at four test-beds established specifically for this purpose.

Prototype or modified systems integrating these capabilities are evaluated in demonstrations--those demonstrating military utility can transition to a Service for acquisition, with a residual operational capability provided to combatant commanders when planned.

Starting in FY 2003, planned milestones were grouped by program instead of product types to provide a clearer link to the programs included in this program element.

**Exhibit R-2, RDT&E Budget Item Justification**

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<b>APPROPRIATION/BUDGET ACTIVITY</b>	<b>R-1 ITEM NOMENCLATURE:</b>
RDT&E, Defense-Wide/Advanced Technology Development - BA 3	Proliferation Prevention and Defeat 0603160BR

**B. Program Change Summary:**

(\$ in Millions)	FY 2003	FY 2004	FY 2005
<b>Previous President's Budget</b>	<b>123.9</b>	<b>81.0</b>	<b>96.0</b>
<b>Current President's Budget</b>	<b>147.1</b>	<b>96.8</b>	<b>74.4</b>
<b>Total Adjustments</b>	<b>23.3</b>	<b>15.8</b>	<b>-21.6</b>
<b>Congressional program reduction</b>			
<b>Congressional recissions</b>		<b>-1.1</b>	
<b>Congressional increases</b>		<b>26.0</b>	
<b>Reprogramming</b>			
<b>SBIR/STTR Transfer</b>	<b>-1.7</b>		
<b>Internal Transfer (DoD Defense-Wide)</b>	<b>25.2</b>	<b>-9.1</b>	<b>-15.1</b>
<b>Internal Transfer (Within DTRA)</b>	<b>-.2</b>		<b>-6.5</b>

**Change Summary Explanation:**

- The net increase in the FY 2003 funding profile from the previous President's Budget to the current President's Budget is the result of two Departmental actions. The first action was to implement an Omnibus reprogramming action that provided this PE \$22.9M in support of the Unconventional Nuclear Warfare Defense. The second action was a Departmental decision to provide this PE with \$2.3M in support of Thermobaric Hellfire Testing. This PE also experienced a net \$-.2M below-threshold reprogramming action in support of the Nuclear Phenomenology program. Also, during the year of execution, SBIR funding is consolidated into PE 0605502BR "Small Business Innovative Research" for execution.
- The overall increase in FY 2004 from the previous President's Budget to the current President's Budget is attributed to Congressional adds in the amount of \$26M (+\$22.5M Guardian Portable Radiation Search Tool, +\$1.8M Center for Coastal and Maritime Security, and +\$1.7M Innovative Technology and Equipment to Counter NCB Threat). The FY 2004 DoD Appropriation Bill (P.L. 108-87) contained several Congressional recissions that were proportionally applied to the entire DTRA RDT&E program. Reductions for this program amounted to \$1.1M (-\$200K Section 8094-Management Improvement, and -\$900K Section 8126-Savings from Outsourcing, Management Efficiencies, and Revised Economic Assumptions). The current FY 2004 President's Budget also reflects the Department's decision to transfer \$9.1M and consolidates program management functions of the Counterproliferation Analysis and Planning System (CAPS) within the United States Special Operations Command (USSOCOM), thereby eliminating a structure where program management and funding were split between the Defense Threat Reduction Agency (DTRA), United States Strategic Command (USSTRATCOM) and USSOCOM.
- \$9.4M of the decrease in the FY 2005 funding profile from the previous President's Budget to the current President's Budget reflects the FY 2005 portion of the CAPS transfer initiated in FY 2004 (see previous paragraph). This program also contributed \$5.7M in response to the Department's decision to fund the Terrorist Device Defeat (TDD) program, of which \$5.1M of this funding went to DTRA PE 0602716BR "WMD Defeat Technology, with the remaining dollars going to the DTRA O&M, Defense-Wide account in support of TDD. DTRA also internally transferred funding from this program to the O&M appropriation for the Nevada Test Restoration. During the conduct of the Defense Threat Reduction Agency's

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(DTRA) underground nuclear testing program, some areas of the Nevada Test Site were contaminated. DTRA has entered into an Agreement with the National Nuclear Security Administration, Nevada Operations Office (NNSA/NV), and the administrator of the Nevada Test Site, for corrective environmental restoration actions in areas of the Nevada Test Site used by DTRA. These funds will be utilized to identify and investigate sites of potential historic contamination, and to take corrective actions necessary to protect human health and the environment. In addition DTRA internally realigned funding from this program to the O&M appropriation in response to the rapid growth and evolution of the WMD environment which poses an increased threat to national security. The Defense Threat Reduction Agency (DTRA) has realigned this funding to support critical mission areas. DTRA's priority development is strongly linked to the Combatant Commanders. Funding is used to support high priority combat support requirements, realign the Arms Control program in accordance with current planning, assumptions and associated requirements, correct infrastructure deficiencies and implement the business reform initiative. It also balances the program consistent with strategic priorities both within DTRA and the Department of Defense.

- The resulting program provides for a flexible combat support structure; focused science and technology investments, to include such critical areas as WMD target defeat and nuclear weapons effects technologies; enhanced consequence management capabilities; force protection, infrastructure protection and dual-use homeland security initiatives; as well as the streamlining and transformation of the supporting business practices and workforce.

**C. Other Program Funding Summary:** see Exhibit R-2a

**D. Acquisition Strategy:** N/A

Exhibit R-2a, RDT&E Project Justification							Date: February 2004		
APPROPRIATION/BUDGET ACTIVITY				PROJECT NAME AND NUMBER:					
RDT&E, Defense-Wide/Advanced Technology Development - BA 3				0603160BR	Project BB-Small Business Innovative Research*				
Cost (\$ in millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	
Project BB – Small Business Innovative Research	0*	2.1	.4	.6	.7	.7	.7	Continuing	

\*In year of execution, funding executed under PE 0605502BR “Small Business Innovative Research”

- This project:
  - Stimulates technological innovation in the private sector
  - Strengthens the role of small business in meeting DoD research and development needs
  - Fosters and encourages participation of minority and disadvantaged businesses in technological innovation
  - Increases the commercial application of DoD supported research and development results.
- These efforts are responsive to PL 106-554.

**B. Accomplishments/Planned Program:**

Cost (\$ in millions)	FY 2003	FY 2004	FY 2005
Small Business Innovative Research (SBIR)	0*	2.1	.4

**FY 2003 Accomplishments**

- Supported the Small Business Administration (SBA) National Direction by actively seeking small business contractors to perform innovative research. In year of execution, funding executed under PE 0605502BR “Small Business Innovative Research”

**FY 2004 Plans**

- Support the Small Business Administration (SBA) National Direction by actively seeking small business contractors to perform innovative research.

**FY 2005 Plans**

- Support the Small Business Administration (SBA) National Direction by actively seeking small business contractors to perform innovative research.

**C. Other Program Funding Summary: N/A**

**D. Acquisition Strategy: N/A**

**E. Major Performers: N/A**

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		Date: February 2004
<b>APPROPRIATION/BUDGET ACTIVITY</b>		<b>PROJECT NAME AND NUMBER:</b>
RDT&E, Defense-Wide/Advanced Technology Development - BA 3	0603160BR	Project BI: Arms Control Technology*

Cost (\$ in millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete
Project BI – Arms Control Technology*	42.0	5.4	6.8	5.9	18.6	21.3	21.7	Continuing

\*Project retitled to "Detection Technology" in FY 2005 to better define the program

**A. Mission Description and Budget Item Justification:**

- This project provides an integrated and comprehensive approach to meet technology requirements associated with achieving national defense nonproliferation and arms control objectives. Major activities include:
  - Develop technologies to monitor, detect, identify and locate strategic, conventional and improvised weapons, or their components, to support DoD requirements in the areas of international treaties and agreements, homeland security, combating terrorism and nonproliferation.
  - Develop procedures and equipment that will enable the United States government to effectively exercise treaty inspection rights, monitor compliance, and accomplish reporting associated with current and projected treaty requirements in the most non-intrusive and cost-effective manner. Objectives include achieving more effective methods of measuring characteristic Treaty-Accountable Item signatures (e.g. for non-deployed missiles and warheads in all life-cycle phases, to include conversion and/or elimination) and providing monitoring/inspection capabilities to reduce the overall cost and increase the flexibility of U.S. inspectors utilizing technologies based on physical principles such as nuclear radiation detection, acoustics, or chemical identification.
  - Develop technology to provide information collection, processing and dissemination capabilities for compliance assessments and to meet notification and reporting requirements associated with evolving treaties and agreements (e.g., new rules for counting strategic forces).
  - Develop technologies to synergistically support international peacekeeping efforts and other nonproliferation initiatives.
  - Perform technology assessments and provide technical input to support development of innovative agreements addressing arms control issues in new topical areas and/or specific geographical regions.
  - Provide improved detection systems to DoD to detect radiological or high explosive material. Improvement in systems includes increased range of detection, lower costs, lower weight and better resolution and sensitivity to minimize false positives.
  - Develop systems using advances in solid state nuclear detectors, processing electronics, analysis software, and identification technology, and combination nuclear/biological/chemical sensor technology.

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RDT&E, Defense-Wide/Advanced Technology Development - BA 3	0603160BR	Project BI: Arms Control Technology*

**B. Accomplishments/Planned Program:**

Cost (\$ in thousands)	FY 2003	FY 2004	FY 2005
Arms Control Technology*	42.0	5.4	6.8

\* Retitled to "Detection Technology" in FY 2005 to better define the program

**FY 2003 Accomplishments**

- Continued cooperative development of strategic arms control technologies with the Russian Federation
- Continued development of portable high resolution room temperature gamma ray detectors.
- Continued development of highly efficient portable neutron detectors.
- Continued Open Skies sensor performance evaluations and accomplished RDT&E to support application of sensor equipment for Open Skies aircraft.
- Continued Open Skies Management and Planning System (OSMAPS) life cycle upgrade assessment.
- Initiated Data Preparation Facility (DPF) enhancements to meet Open Skies operations requirements.
- Transferred research and development programs to the U.S. Air Force and U.S. Army that improved understanding of source phenomenology and propagation for nuclear events near detection threshold and enhanced detection, location, screening, and identification of underground, oceanic, and atmospheric events.
- Completed development and delivery of the Integrated Notification Application, replacing the Open Skies Notification Front End System (NOFES), Conventional Armed Forces in Europe NOFES and Confidence and Security Building Measures Macros to the Organization for Security and Cooperation in Europe.
- Developed prototype to demonstrate data synchronization of legacy data using a virtual database schema in preparation for the Inspection Planning Module development and selection of alternative technical approaches.
- Awarded contract and began development of the Inspection Planning Module to manage inspector and transport crew personnel information and to conduct situational analysis.
- Completed development and delivery of the Treaty Limited Equipment search tool under the Compliance Monitoring and Tracking System (CMTS) for HQ EUCOM, HQ USAFE, HQ USAREUR and DTRA OS.
- Completed Windows 2000 operating system upgrade to the Compliance Monitoring and Tracking System.
- Completed hardware upgrade to the Compliance Monitoring and Tracking System and USAF START Reporting System as part of a life cycle replacement.
- Initiated reciprocal COOP agreement and alternate/hot backup capability with HQ ACC at Langley AFB.
- Continued development of the next generation conventional treaties application suite to integrate and provide consistency in reporting across conventional treaties and agreements.

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- Initiated development of the Treaty Limited Equipment Area Search, advanced catalog search tool and notifications in a web environment.
- Added HQ Central Command and Marine Forces Europe in support of data management responsibilities under Vienna Document 99 Confidence and Security Building Measures.

**FY 2004 Plans**

- Continue cooperative development of technologies with the Russian Federation to enhance security and accountability of Russian nuclear weapons.
- Continue development of portable high-resolution room temperature gamma ray detectors.
- Continue development of highly efficient portable neutron detectors for the detection of radiological or nuclear weapons.
- Continue Open Skies sensor performance evaluations and accomplished RDT&E to support application of sensor equipment for Open Skies aircraft for the detection of radiological or nuclear weapons.
- Continue development of the Treaty Limited Equipment Area Search advanced catalog search tool (Initial Operational Capability (IOC) – 1st QTR FY04), and notifications (2nd QTR FY04) in a web environment.
- Develop CMTS Adapted Conventional Armed Forces in Europe Treaty interface to Integrated Notification Application
- Provide a data management capability for Conventional Forces Europe (CFE) to support treaty entry into force planning assumptions.
- Continue state-of-the-art technologies development of next generation treaty support information management capabilities under the Arms Control Information and Notification (ACIN) Program.
- Continue development of enhanced web-based training and situational analysis tools.
- Complete development and delivery of the Inspection Planning Module.
- Continue Independent Verification and Validation (IV&V) tests of information processing systems.
- Continue program for developing systems using advances in solid state nuclear detectors, processing electronics, analysis software, identification technology, and combination nuclear/biological/chemical sensor technology.

**FY 2005 Plans**

- Continue Open Skies sensor performance evaluations and accomplished RDT&E to support application of sensor equipment for Open Skies aircraft.
- Continue state-of-the-art technologies development of next generation treaty support information management capabilities under the Arms Control Information and Notification (ACIN) Program.

**C. Other Program Funding Summary:** N/A

**D. Acquisition Strategy:** N/A

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		Date: February 2004
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RDT&E, Defense-Wide/Advanced Technology Development - BA 3	0603160BR	Project BI: Arms Control Technology*

**E. Major Performers: N/A**

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		Date: February 2004
<b>APPROPRIATION/BUDGET ACTIVITY</b> RDT&E, Defense-Wide/Advanced Technology Development - BA 3                      0603160BR		<b>PROJECT NAME AND NUMBER:</b> Project BJ – Special Operations Forces (SOF) Counterproliferation Support

Cost (\$ in millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete
Project BJ – SOF Counterproliferation Support	25.1	47.3	18.8	21.1	17.6	19.7	20.1	Continuing

**A. Mission Description and Budget Item Justification:**

- This project supports the Joint Functional Concept of Force Application by developing and demonstrating technologies that enable Special Operations Forces (SOF) to detect, disable, neutralize and render safe WMD and their associated facilities. Weapons of Mass Destruction (WMD) and their associated facilities are proliferating among potential U.S. adversaries. This mission within Force Applications has been identified as a critical national priority and assigned to SOF since 1995. The goals of the SOF Project are to provide management oversight and technical assistance for SOF-unique technologies, and develops enhanced SOF applications that expand the technology base to mitigate near and mid-term program deficiencies.
- The following programs are currently planned: SOF Counterproliferation (CP) Research and Development (R&D), Manportable, and the Sensor/Detector Development and Testing Program. These three programs are described in the following paragraphs:
  - The SOF CP R&D Program demonstrates through combat validations SOF-unique devices that enable SOF to detect, disable and neutralize WMD and their associated facilities. This project directly supports SOF contributions to the nation's effort to counter the spread of WMD. Efforts in this project include: the defeat of hard and deeply buried targets (HDBT), explosive ordnance disposal (EOD) and maritime efforts to prevent the spread of WMD technology. Details of this program have been classified per CJCSM 5225-01 dated 23 Oct 1996.
  - Manportable program develops a full spectrum of complimentary Combating Terrorism (CT) and Counterproliferation (CP) capabilities that will provide the Department of Defense, Combatant Commanders (COCOM) and Other Government Agencies (OGA) the ability to detect and destroy WMD in various backgrounds, concentrations and forms. This program will also develop an analysis of the current knowledge base for detection and decontamination of Chemical, Biological, Radiological and Nuclear (CBRN) materials. DTRA will provide, upon request, direct program support to develop enhanced capabilities for USSOCOM applications that expand this technology base and mitigate mid-term deficiencies. Details of this program have been classified per CJCSM 5225-01 dated 23 Oct 1996.
  - The Sensor/Detector Development and Testing Program has two distinct objectives: develop portable, high resolution and highly efficient room temperature radiation detectors; and develop an integrated sensor network to improve the tactical operating picture for SOF. To accomplish these objectives the program is broken up into two separate activities, the Guardian Portable Radiation Search Program and the Sensor Network Integrated Technology Demonstration. These two activities are described in the following paragraphs:
    - The Guardian Portable Radiation Search Program develops portable, high resolution, and highly efficient room temperature radiation detectors. The goal of this program is to improve detection and characterization of nuclear threats via increased sensitivity, selectivity, and specificity of radiation measurements conducted in a field environment.
    - The Sensor Network Integrated Technology Demonstration project demonstrates the capability of mature/maturing technologies networked together to increase the effectiveness and efficiency of SOF to clandestinely conduct Intelligence, Surveillance and Reconnaissance (ISR) in

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denied littoral and other areas to support Combating Terrorism/Counterproliferation missions and Theater CONPLANS/OPLANS. This effort leverages legacy DTRA programs to guide development of an integrated sensor network to improve the tactical operating picture for SOF.

**B. Accomplishments/Planned Program:**

Cost (\$ in millions)	FY 2003	FY 2004	FY 2005
SOF Counterproliferation Support	17.9	18.3	18.8

**FY 2003 Accomplishments**

- Specific details are classified.

**FY 2004 Plans**

- Specific details are classified.

**FY 2005 Plans**

- Specific details are classified.

Cost (\$ in millions)	FY 2003	FY 2004	FY 2005
Manportable	7.2	5.0	0

**FY 2003 Accomplishments**

- Initiated gap analysis of the current knowledge base for chemical agent defeat.

Isolated the gene, cloned and purified an active enzymatic preparation for an agent defeat capability.

Conducted an independent biological decontaminant efficacy test for various formulation candidates. Delivered draft report detailing formulation performance.

**FY 2004 Plans**

- Deliver final chemical agent defeat gap analysis.
- Validate enzymatic-based agent defeat chemistries.
- Complete a gap analysis of the current knowledge base for biological agent defeat.
- Develop a manportable biological agent defeat capability using polymers.
- Develop, validate and deliver a sample processing capability that will allow identification of agents using “gold standard” techniques.

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	0603160BR	

- Develop technologies to address gaps identified in gap analysis.
- Execute transition of developed capabilities to USSOCOM.
- Seek collaborative manportable efforts with DTRA partners.
- Conduct market surveys for new investment opportunities.

Cost (\$ in millions)	FY 2003	FY 2004	FY 2005
The Sensor/Detector Development and Testing Program	0	24.0	0

**FY 2004 Plans**

- The following are the FY 2004 plans for the Guardian Portable Radiation Search Program
  - Advance technologies for verification and compliance monitoring
  - Develop man-portable instruments with minimal battery power needs
  - Develop vehicle-mobile instruments with long-range gamma and neutron detection capabilities
  - Develop and test integrated prototypes
- The following are the FY 2004 plans for the Sensor Network Integrated Technology Demonstration
  - Identify the applicable systems/technology that exist or are in development that relate to current requirements
  - Complete individual systems/technology development as required
  - Demonstrate their respective individual capability
  - Develop the technology to integrate the individual systems
  - Demonstrate a fully integrated network

C. **Other Program Funding Summary:** N/A

D. **Acquisition Strategy:** N/A

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**E: Major Performers:** Approximately \$13M of FY 2003 funding was obligated with USSOCOM located in Florida in support of the Special Operations Forces (SOF) Counterproliferation Support.

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Cost (\$ in millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete
Project BK – Counterforce	57.0	42.0	48.4	63.9	72.9	73.2	75.7	Continuing

**A. Mission Description and Budget Item Justification:**

- Project BK supports the Joint Functional Concept, Force Application, and the Quadrennial Defense Review transformational Goal to Deny Enemy Sanctuary. The objective is to develop technologies, demonstrate prototype systems in an operationally realistic environment, support operators in defining innovative concepts of operation, and provide combatant commanders with enhanced capabilities that respond to potential adversaries' capability to develop and/or employ nuclear, biological and chemical (NBC) weapons of mass destruction (WMD). The U.S. requires the capability to attack and neutralize NBC research, production, storage, operations and support, and command and control facilities while mitigating collateral effects from expulsion and release of NBC agents. Potential targets include fixed, above ground and underground, hardened and unhardened facilities, as well as related Command, Control, Communications and Intelligence (C3I) facilities, and transshipment and delivery systems. The goal is rapid development and demonstration of enhanced counterforce mission capabilities that include, but are not limited to, advanced conventional and non-conventional (non-nuclear) weapons, application of sensor technologies for weapons of mass destruction (WMD) combat assessment and target-attack planning tools that optimize weapon and sensor employment.
- This project emphasizes technology demonstrations to include Advanced Technology Demonstrations (ATD) and Advanced Concept Technology Demonstrations (ACTD). The following are current programs in the Counterforce Project: the Second Counterproliferation (CP2) Counterforce ACTD; Agent Defeat, Deny and Disrupt (AD3); Biological Combat Assessment System (BCAS) ATD; SOF Warrior renamed SOF Venture for FY04 and beyond; SOF Bio ACTD; SOF Chem ATD; the Hard Target Defeat (HTD) demonstrations; WMD Time-Sensitive Target Defeat and Counterforce Taggant Technology (restructured in FY04 from Standoff High-Speed Option for Counterproliferation that did not get JROC approval as an ACTD); WMD Planning Capability; and the CP Analysis and Planning System (CAPS). Additional funds for this Project, added as a result of the Secretary of Defense Strategic Review in FY 2002, are being used to demonstrate technologies identified in the Hard and Deeply Buried Target Defeat (HDBTD) Science & Technology Master Plan. These Counterforce programs are grouped by the supported mission area: WMD Counterforce Applications; SOF Counterproliferation Support; Hard Target Defeat; and the Counterproliferation Analysis and Planning System. They are described in the following paragraphs:
  - WMD Counterforce Applications:
    - The objective of the CP2 ACTD is to develop, demonstrate, and deliver enhanced standoff, counterforce capabilities in conjunction with operational concepts to combatant commanders for attack planning and timely, reliable defeat of WMD related facilities while minimizing collateral hazards. The CP2 ACTD depends on technology base and products in PE 0602716BR, Project BD for planning tools and Project BE for test planning and execution support for the WMD Defeat Operational Demonstrations. The Navy and Air Force are both participating in weapons and WMD combat assessment system development for the ACTD. The CP2 ACTD has been approved by Deputy Under Secretary of Defense for Advanced Systems and Concepts DUSD (AS&C), and the management plan was signed April 21, 1999. USEUCOM is the operational sponsor with USJFCOM and USSTRATCOM participating. The CP2 ACTD started in FY 1999 and will be completed in

**APPROPRIATION/BUDGET ACTIVITY**

RDT&amp;E, Defense-Wide/Advanced Technology Development - BA 3

0603160BR

**PROJECT NAME AND NUMBER:**

Project BK – Counterforce

FY 2004. Residual support for several CP2 ACTD products will continue through FY 2005. Accomplishments for the CP2 ACTD can be found under the WMD Combat Assessment, Collateral Effects Prediction & Target Response, Weapons and Operational Demonstrations subprojects.

- The Agent Defeat, Deny, Disrupt (AD3) program is a joint effort with the U.S. Air Force. The objectives are to develop, demonstrate and transition an enhanced capability to either defeat, deny access to WMD material and systems, or disrupt the adversary's capability to employ those materials or systems; and to obtain collateral effects test data to enhance target planning tools. The program started in FY 2002. This program responds to the 1994 U.S. Air Force Mission Need Statement for Agent Defeat Weapons. This program includes development, demonstration, and enhancement of weapons specifically designed for AD3 missions, including 'Shredder' and Crash Prompt Agent Defeat (PAD). AD3 depends on the technology base PE 0602716BR, Project BD for weapons phenomenology.
- Biological Combat Assessment System (BCAS) ATD leverages the development work completed and demonstrated for the Chemical Combat Assessment System in FY 2003. BCAS is a new start in FY 2004 and will demonstrate a biological assessment capability that supports CP counterforce missions. USPACOM is the operational sponsor. BCAS supports PACOM's Biological Weapons Countermeasures Initiative.
- The WMD Time-Sensitive Target Defeat and Counterforce Taggant Technology programs examine weapons effects of attacks on time-sensitive targets (TST) and the ability to enhance WMD combat assessment through weapon-borne taggants. Test data collected during simulated TST attack testing will be used to develop models for WMD planning capability tools. The Counterforce Taggant Technology program will conduct sub-scale and full-scale tests of promising taggant technologies to help in the location and tracking of biological agent simulants in explosive plumes. This subproject started as Standoff High-Speed Option for Counterproliferation ACTD planning in FY 2003 and continues as restructured in FY 2004.
- WMD Planning Capability develops and demonstrates planning tools to support combatant commanders during exercises and actual operations. The effort continues collateral effects and target response tool development from prior years to address new applications.
- Special Operation Forces (SOF) Counterproliferation (CP) Support:
  - SOF Venture (previously named SOF Warrior) develops specialized SOF technologies and equipment prototypes to detect, disable and render safe and recover critical components from WMD devices in non-permissive and time-sensitive environments. This effort began in FY 2003.
  - The SOF Bio ACTD was transferred from Project BJ in FY 2003 to demonstrate enhanced capabilities for the customer, USSOCOM. SOF Bio ACTD integrates existing and developing technologies to produce SOF-focused capabilities for counterproliferation operations against biological warfare production, storage, and weaponization facilities. The objective is to provide to the Geographic Combatant Commander/USSOCOM capabilities, adaptable to other areas of responsibilities (AORs), for counterproliferation activities in response to a country's BW program. The ACTD acts as a forcing function across DoD to develop Joint Doctrine, focusing on SOF capabilities, for counterproliferation of biological warfare infrastructure not vulnerable to attack by conventional forces. Scheduled for June 2003, the final demonstration was delayed one year due to real-world operational requirements. Details of this program are classified per CJCSM 5225-01, dated 23 Oct 1996.
  - The SOF Chem ATD integrates existing and developing technologies to produce SOF-focused capabilities for counterproliferation operations against chemical warfare production, storage, and weaponization facilities. The objective is to provide capabilities to the Geographic

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Combatant Commander and USSOCOM capabilities for counterproliferation activities in response to a country’s CW program. These capabilities will be adaptable to other areas of responsibility (AORs). The ATD acts as a forcing function across DoD to develop Joint Doctrine, focusing on SOF capabilities, for counterproliferation of chemical warfare infrastructure not vulnerable to attack by conventional forces. Details of this program are classified per CJCSM 5225-01, dated 23 Oct 1996.

- Hard Target Defeat (HTD):
  - The HTD program objective is to develop and demonstrate end-to-end capabilities for the functional defeat of hard targets, particularly tunnels, and assess developing weapon and sensor concepts against such targets. The program does not develop new sensors; it assesses existing or emerging technologies being developed by others. The HTD program develops technologies under PE 0602716BR, Project BF, and transitions them to this program for demonstration. The demonstrations require test planning and execution support from PE 0602716BR, Project BE. HTD customers are USPACOM, USSTRATCOM, USSOCOM, and the Air Force’s Air Combat Command.
  - The Hard Target Defeat (HTD) demonstrations develop new weapons, delivery concepts, and planning capabilities to defeat Hard and Deeply Buried Targets. The following demonstrations are part of the current plan:
    - The C3I Defeat Demonstration explores and demonstrates a range of novel concepts for defeat of underground C3I facilities. The currently planned HTD C3I Demonstration ends in FY 2004. Transition to the Combatant Commands of promising concepts is anticipated this fiscal year.
    - The Tunnel Defeat ACTD will improve the warfighter’s confidence in selecting the smallest nuclear yield necessary to destroy underground facilities while minimizing collateral damage. The focus of the demonstration is to reduce the uncertainties in target characterization and weapon effect/target response. Target characterization uncertainties include those related to determining the target function, layout, operational status, and the geological and geotechnical features. Weapons effects/tunnel response uncertainties are associated with predicting ground shock and tunnel response in layered and jointed media.
    - The Thermobaric ACTD will develop a weapon concept that is based on a new class of thermobarics. Thermobarics include a broad range of high-energy density materials that are capable of producing high temperatures (“thermo”) and high pressures (“barics”) for extended periods of time creating the potential for producing sustained, distributed airblast in hard targets. The weapon could be used against certain types of tunnel targets for a maximum functional kill of the tunnels. Prototype weapons will be tested under operational conditions for their performance, and leave-behinds will be delivered to the customer.
    - The Intelligent Munition for the Precision Attack on Critical Targets (IMPACT) Proof of Concept Demonstration will develop a system, using existing technology, which can be fielded quickly, is affordable and that can defeat ground combat vehicles that take sanctuary in tunnel complexes. The vehicles include multiple rocket launch systems (MRLS) and theater ballistic missile systems (TBM) that attack while outside the tunnel. These vehicles reduce their vulnerability by retreating into tunnels once launch operations have concluded. This Proof of Concept Demonstration will demonstrate a means to provide a quick response to kill these target while they are most vulnerable during launch operations.
- The Counterproliferation Analysis and Planning System (CAPS) program responds to the need for a comprehensive and timely counterproliferation (CP) target planning tool to assist combatant commanders in the conduct of their Concept of Operations Plan (CONPLAN) 0400 targeting

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responsibilities. Products from CAPS include end-to-end descriptions of country specific Nuclear, Biological, Chemical, and Missile (NBC/M) programs of proliferation concern. The analysis provides combatant commanders highly detailed assessments of a country's NBC/M programs, and proliferation pathways, and identifies the critical nodes and key facilities that, if eliminated, would cause the greatest impact to that program. This information will directly support the combatant commanders in the planning and execution of their CP missions. These analyses are conducted in successive levels of detail, identified as Level 1-5 analyses, with Level 1 having the lowest analytical detail and Level 5 the highest. As an output of the analyses, CAPS will provide CP target planners with the critical data elements needed to take effective action against the NBC/M programs of proliferating countries, and will also predict whether there will be environmental consequences (hazards) produced by these actions. CAPS transfers to USSOCOM in FY2004. The planned programs provide products in five areas: WMD combat assessment, collateral effects prediction, target response, weapons and operational demonstrations. These product areas are described in the following paragraphs:

- **WMD Combat Assessment.** This product area has evolved from the former (completed in FY 1998) Counterproliferation 1 (CP1) ACTD sensor product area to provide WMD combat assessment capabilities. Product area efforts will provide improved warfighting capabilities against the spectrum of WMD-related facilities. These efforts will continue to leverage existing programs to (1) evaluate near-term technologies; (2) define concepts of operation and system architecture for chemical combat assessment; (3) produce data fusion and mission planning modules to meet user requirements on existing platforms; and (4) integrate chemical and biological combat assessment capabilities onto delivery systems, such as unmanned air vehicle (UAV) and expendable mini-UAV platforms. This effort will further demonstrate the ability to confirm, identify and assess the release of biological/chemical agents in support of attacks on NBC facilities and assist in predicting transport patterns by updating pre-strike predictions of the potentially hazardous plume with real-time data.
- The combat assessment product area will not develop its own sensors, but will leverage ongoing chemical sensor efforts within the chemical and biological defense community to minimize program risk for applying this technology to counterforce missions. In CP2, a Chemical Combat Assessment System (CCAS) was demonstrated. The feasibility of a Biological Combat Assessment System (BCAS) is being studied in FY 2004. BCAS is an airborne Biological Battle Damage Assessment capability that provides near real-time analysis to determine if a biological agent has been released following a counterforce attack on adversary biological production and storage facilities. The BCAS system is intended to transition to an ATD program in FY 2004 under a phased program approach: Spiral 1 (FY 2004-2006) – cloud standoff detection with point biological sample collection; Spiral 2 (FY 2006-2007) – cloud standoff detection with point biological sample collection and identification.
- **Collateral Effects Prediction.** The collateral effects effort provides predictive tools for a variety of applications supporting Nuclear, Biological and Chemical (NBC) target attack planning to include NBC expulsion and dispersion resulting from attacks on WMD facilities as well as acts of terrorism and hostile use of WMD. Requirements include high-resolution weather models, weather measurement systems, and population databases. A key element in developing these collateral effects codes is chemical/biological expulsion tests and modeling. Modeling of chemical/biological expulsion sources will be based on theoretical models and empirical data. Codes will be validated from existing data, other predictive models and special collateral effects experiments. The collateral effects tools will provide pre-attack prediction and post-attack assessment.
- The Hazard Prediction and Assessment Capability (HPAC) is a major product that predicts the release and transport of NBC materials and the subsequent collateral effects. The high-resolution weather prediction capability, another area of emphasis in the product area, will

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provide timely wind, cloud, and precipitation data necessary for more detailed NBC collateral effects predictions. These tools will also be integrated into the target attack planning tools to assess the consequences of attacks on WMD facilities.

- Target Response.** This effort will provide a new target attack planning and combat assessment capability and a major upgrade for existing theater-level planning capabilities for defeating or denying NBC facilities and capabilities. This effort builds on the Integrated Munitions Effects Assessment (IMEA) planning tool developed for CP1 ACTD. IMEA provides a forward deployable, target planning capability for NBC targets. IMEA is an integration of the Munitions Effects Assessment (MEA) tool providing targeting solutions using conventional weapons for a variety of structures and equipment and the HPAC developed under the Collateral Effects Prediction product area. The integrated capability supports the warfighters in the attack planning phase with target response and collateral effects prediction, and in the post-attack phase with combat assessment and re-strike decision support. Upgrades to IMEA for the CP2 ACTD include additional target types (including complex facilities), additional weapons as developed in the Weapons area below (including multiple weapon effects), additional platforms, more operator-friendly displays, more WMD material types, weather interfaces and sources, and more detailed weapon input parameters (such as angle of attack). The ultimate CP2 IMEA product was able to run stand-alone or in a web-based client-server distributed architecture. It is migrating into the Integrated Target Planning Tool Set (ITPTS). ITPTS is evolving into the Integrated WMD Toolset (IWMDT). IWMDT is the second CP2 deliverable. The IWMDT will provide a spectrum of planning and assessment capabilities from deliberate to crisis. IWMDT provides the warfighter a standardized weaponeering framework that greatly increases weaponeering efficiency and fidelity while minimizing warfighter training requirements. It expedites cross service/coalition weaponeering and joint planning. The IWMDT architecture provides the warfighter with cross platform interoperability and a common look and feel, independent of weapon or target. In addition, it provides the warfighter critical decision support services for all target classes including those associated with weapons of mass destruction. IWMDT will also predict weapons performance and associated NBC collateral effects, develop targeting solutions that minimize collateral effects, and provide results through appropriate interfaces for a variety of targets including functionally and structurally complex facilities. IWMDT will provide an enhanced seamless interface to the Intelligence Community (IC) data sources. IWMDT will be the weaponeering segment in the Joint Targeting Toolbox (JTT) and provides the warfighter with targeting information in JTT's "Electronic Target Folder" (ETF). This effort will execute a full verification and validation program, in accordance with the Joint Technical Coordinating Group for Munitions Effects (JTCG/ME) Procedures, for all delivered capabilities including extensive verification testing and operational and field testing at all functional levels.
- Weapons.** This product area will develop, integrate and demonstrate advanced conventional weapons technologies to improve mission effectiveness against NBC targets while mitigating collateral effects. The focus for CP2 ACTD was to provide combatant commanders with a demonstrated option to attack NBC facilities in a standoff mode. This effort improved on existing standoff weapon platforms to provide enhanced penetration and advanced fuzing developed during CP1. Standoff weapons that were enhanced include the Tactical Tomahawk in a penetrator variant and the Conventional Air Launched Cruise Missile (CALCM). An enhanced payloads project explores alternate warhead options to conventional blast/fragmentation with the objective of mitigating collateral effects associated with dispersal of NBC. Hard Target Defeat (HTD) will demonstrate the use of non-conventional (non-nuclear) weapons to functionally defeat tunnels. HTD weapons technology being developed includes advanced energetics (like thermobarics) and non-energetics for functional defeat of hard and deeply buried targets.

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- **Operational Demonstrations.** This product area will improve the operational capability for holding NBC targets at risk with minimum collateral effects. The objective is to integrate available or near-term technologies for WMD combat assessment, weapons, collateral effects prediction and target-planning tools, to evaluate the technologies in an operational context, and to transition improved capabilities rapidly to combatant commands. Specifically, this product area will enhance and accelerate existing programs to provide integrated target planning, collateral effects prediction codes, a Biological Combat Assessment System (BCAS) and advanced weapons to meet NBC target defeat requirements. This product area will also support demonstration operations to include system operational concept, demonstration planning, scenario development, execution of the demonstration, and post-demonstration analysis. Planning and execution of demonstrations use a time phased approach to screen candidate technologies for maturity, develop prototype systems and demonstrate enhancements in military capability against a combatant command prioritized subset of all potential NBC target types. This approach results in a cycle of prototype development and testing followed by periods of operational demonstration.
- Three operational demonstration series were conducted for CP2 ACTD over the period of FY 2000-2003 to provide the operational sponsor, United States European Command, and participating commands with the opportunity to assess the utility of the selected technologies. The objective of the first demonstration series in CP2 ACTD, called Dipole Yukon (DY), was to demonstrate the capability to plan and execute chemical/biological (C/B) counterforce missions with the Joint Air-to-Surface Standoff Missile (JASSM) through operationally realistic attacks against a simulated biological weapons storage facility. The objective of the second demonstration, called Dipole Zodiac (DZ), was to assess the suitability of the CALCM with a penetrating warhead and a Predator unmanned air vehicle (UAV) based standoff collateral effects assessment system. The objective of the third demonstration series, called Divine Canberra (DC), was to evaluate the end-to-end set of products of the CP2 ACTD including the target planning tool, in its final operational context, the Tactical Tomahawk Penetrator Variant (TTPV), and remote combat assessment using a small expendable mini-UAV with a chemical point detector on-board (and deployed from the Predator UAV demonstrated in DZ) against a hard chemical production and storage facility.
- The following operational demonstrations are planned for FY04-06:
  - The BCAS ATD starts Spiral 1 in FY2004 and ends Spiral 2 in FY2007. The operational sponsor is USPACOM.
  - The SOF Bio ACTD was delayed in completing by one year due to operational sponsor wartime commitment. It now completes demonstration in FY2004.
  - The SOF Chem ATD, a three-year effort, starts in FY04.
  - A Command, Control, Communications and Intelligence (C3I) facility defeat demonstration will be completed and assessed in early FY04.
  - The Thermobaric ACTD will leverage existing concepts and work in energetic payload technology to weaponize, demonstrate, and deliver an improved weapon system for the functional defeat of tunnels targets. Three operational demonstrations are planned in FY 2005 against an operationally representative underground facility complex. The demonstrations will lead to a military utility evaluation conducted by the operational sponsors, United States Pacific Command and United States Forces Korea. The evaluation will assess the end-to-end ability of an improved weapon system to functionally defeat an underground facility complex.
  - The Tunnel Target Defeat ACTD began in FY2003 and will continue into FY2004. The operational sponsor is USSTRATCOM.

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- The IMPACT Proof of Concept Demonstration starts in FY2004. It will demonstrate technologies to defeat time-sensitive mobile WMD targets secured in tunnels.

**B. Accomplishments/Planned Program:**

Cost (\$ in millions)	FY 2003	FY 2004	FY 2005
WMD Counterforce Applications	31.4	17.0	26.5

**FY 2003 Accomplishments**

- Completed flight-testing of integrated FINDER mini-unmanned air vehicle (UAV) on Predator.
- Exercised Chemical Combat Assessment System (CCAS) Predator standoff system and mini-UAV point detector during the Divine Canberra operational demonstration.
- Completed Divine Invader test series with integrated CCAS.
- Began technology feasibility study for a Biological Combat Assessment System (BCAS).
- Completed chemical source term validation testing for collateral effects prediction tool.
- Delivered final hazard source models for Counterproliferation 2 (CP2) Advanced Concept Technology Demonstration (ACTD) standoff weapons.
- Developed initial ensemble weather forecasting for planning tools.
- Provided Hazard Prediction and Assessment Capability (HPAC) modules for Integrated Target Planning Toolset (ITPTS) 2.0 to meet USEUCOM final product requirements.
- Delivered and validated HPAC 4.03 (version increases functionality of planning tools not specifically addressed, such as industrial chemical and nuclear facilities) for Dipole Zodiac and Dipole Yukon demonstrations.
- Validated Integrated Munitions Effects Assessment (IMEA) 4.2 software version includes additional target types, weapons including multiple weapon effects, weather interfaces and sources, and more detailed weapon input parameters (such as angle of attack.) to support Dipole Zodiac and Dipole Yukon 2 (JASSM).
- Delivered and validated final version of IMEA incorporating CP2 ACTD weapons effects data.
- Delivered ITPTS 2.0 that includes access to additional IC data sources and interface to other targeting tools through the Joint Targeting Toolbox (JTT) and Electronic Target Folder (ETF).
- Completed the first phase of the integration of WinJMEM into ITPTS, begin integration of the Joint Technical Group for Munitions Effects (JTCEG/ME) Air-to-Surface Weaponing System (JAWS) into ITPTS.
- Continued IMEA C3I facility model validation testing.
- Performed sub-scale validation tests to support the CP2 full-scale operational tests.
- Began the independent validation of ITPTS 2.0 and submit the Accreditation Support Package (ASP) to the JTCEG/ME for accreditation.

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- Completed the integration of the JTCG/ME weaponeering product WinJMEM into ITPTS.
- Completed the independent validation of MEA 5.0 (version included additional target types (including complex facilities), additional weapons as developed in the Weapons area below (including multiple weapon effects), and additional platforms) to support the CALCM and JASSM demonstrations in CP2 ACTD and submit the Accreditation Support Package (ASP) to the JTCG/ME for accreditation.
- Completed Tactical Tomahawk Penetrator Variant (TTPV) penetrator payload system design, missile systems design and engineering, and air-vehicle modification design and fabrication.
- Conducted TTPV penetrator system test and evaluation.
- Conducted TTPV Flight Event Demonstrations.
- Analyzed results from the Divine Canberra (DC) demonstration.
- Completed design and effectiveness studies for the Hard and Deeply Buried Target Defeat (HDBTD) classified weapon concept.
- Transitioned Prompt Agent Defeat technology into DERF-funded CrashPAD Quick Reaction Capability (QRC) project.
- Completed target refurbishment for Divine Canberra and Dipole Zodiac demonstrations.
- Conducted Dipole Zodiac 2 demonstration, Conventional Air Launched Cruise Missile (CALCM) and analyze results.
- Conducted Divine Canberra 1 and 2 demonstrations for TTPV, CCAS, and planning/analysis tools.
- Completed Midway Fuchsia 3 demonstration of CrashPAD Weapon (BLU-119/B).
- Completed Divine Invader flight-testing of CCAS.
- Analyzed results from Divine Canberra (DC) demonstration.
- Supported USEUCOM's military utility assessment of all CP2 deliverables.
- Developed testbed to provide necessary demonstration and validation capability for new hard and deeply buried target defeat technologies.
- Completed payload plan and weaponization plan for Thermobaric Weapon (TW) demonstration.
- Initiated integration of thermobaric payload material with weapon system and firing system.
- Completed Prompt Agent Defeat (PAD) QRC project.
- Started scale tests for agent neutralization.
- Completed four small-scale tests for agent neutralization.
- Initiated non-energetic agent defeat program-Classified.
- Initiated Standoff High-Speed Option for Counterproliferation (SHOC) project.
- Conducted Military Utility Study of SHOC concept.
- Developed and released request for proposals for SHOC ACTD.

**FY 2004 Plans**

- Transition CCAS residuals to customer and provide sustaining support and training.
- Complete military utility assessment (MUA) of CCAS
- Complete technology feasibility assessment for a Biological Combat Assessment System (BCAS).

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- Complete BCAS requirements development and produce system specification.
- Complete target refurbishment for post-Divine Canberra and Dipole Zodiac demonstrations.
- Provide residual support to CP2 ACTD products.
- Produce Synthetic Exercise Environment (SEE) database and cartographic products for SHAPE Able Ally FY 2004 exercise.
- Implement SEE Atlantis digital terrain mapping enhancements for EUCOM.
- Completion of small-scale optimization for PAD.
- Initiate agent denial & disrupt projects.
- Complete initial laboratory phase of non-energetic agent defeat program
- Begin standardized bioassay program to support agent defeat development.
- Continue agent defeat weapons effect modeling.
- Conduct sub-scale demonstration of taggant technologies.
- Develop weapon integration concepts for taggant use in BLU-116 and BLU-119.
- Deliver taggant sensor concept of operations.
- Begin Biological Combat Assessment System (BCAS) ATD program, Spiral 1, Biological Collector only
- Identify combat command priority, time-sensitive targets (TST), conduct project planning, and initiate acquisition of target simulators.

**FY 2005 Plans**

- Continue Biological Combat Assessment System (BCAS) ATD program, Spiral 1.
- Prepare CCAS for possible US Air Force System Development and Demonstration (SDD) program start in FY 2005.
- Support CCAS residuals and training programs.
- Complete residual support to CP2 ACTD products.
- Conduct full-scale static testing of optimized PAD weapon.
- Develop weaponized agent defeat technology.
- Deliver Energetic Kill Capabilities Study.
- Deliver Non-Energetic Kill Trade/Cost Study.
- Conduct demonstration of agent defeat payload in a BLU-109 against simulated hardened biological facility.
- Conduct mid-scale demonstration of taggant technologies.
- Conduct TST small-scale test.
- Start mid-scale TST tests.

Cost (\$ in millions)	FY 2003	FY 2004	FY 2005
CP Analysis and Planning System	13.3	0	0

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**FY 2003 Accomplishments**

- Completed the second round of Counterproliferation Analysis and Planning System (CAPS) analytical production on 30 September 2002:
  - Level 1-3 analysis on the remaining six CP Mission Support Senior Oversight Group (MS SOG) near-term country programs
  - Level 4 analysis of 40 facilities
  - Level 5 analysis of 5 facilities.
- Continued CAPSNET terminal installations at major commands, priority supporting commands, and support agencies; installations in advanced planning for FY 2002 are EUCCOM (JAC), USFK (PACOM), DIA, WINPAC (CIA), and SOUTHCOM. Other potential CAPSNET installations for FY 2002 are JFCOM (CMSALANT/JFIC), EUCCOM (Stuttgart/Ramstein), and potentially other supporting organizations.
- Upgraded SECRET Internet Protocol Router Network connectivity to a full T-1 line with a 2<sup>nd</sup> T-1 line planned.
- Installed Joint Worldwide Intelligence Communications System (JWICS) CAPS server at Lawrence Livermore National Laboratory (LLNL), providing more up-to-date information than was currently available to CAPS users.

**FY 2004 Plans (Activity and funding reprogrammed to USSOCOM in FY 04)**

**FY 2005 Plans (Activity and funding transferred to USSOCOM in FY05)**

Cost (\$ in millions)	FY 2003	FY 2004	FY 2005
SOF CP Support	0.5	12.5	14.5

**FY 2003 Accomplishments**

- Deployed eight ACTD technologies in support of operations in the Middle East.
- Specific details are classified.

**FY 2004 Plans**

- Execute ACTD in June 2004.
- Execute smooth transition of ACTD residuals that demonstrated military utility in the exercise.
- Further ACTD details are classified.
- Down-select approved technologies for inclusion in SOF Chem ATD.
- Execute ATD kick-off meeting.
- Initiate construction of final demonstration targets for SOF Chem ATD.

**FY 2004 Plans (continued)**

- Perform Analysis of Alternatives (AoA) for SOF Venture.
- Identify and select specific technologies that will be pursued in Phase 1 of SOF Venture.

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- Conduct operational assessment of selected candidate technologies by SOF Venture user/customers.
- Develop SOF Venture program plans and spend plans for the activity and each technical area.
- Start specific SOF Venture kick-off meetings for technologies funded under each technical area
- Specific details are classified.

**FY 2005 Plans**

- Iteratively develop selected technologies performing early user test and evaluations.
- Continue target construction for final demonstration.
- Conduct individual technology testing for SOF Venture.
- Determine military utility assessment test protocol for SOF Venture.
- Conduct Integrated Project Reviews (IPR) for each technology in SOF Venture.
- Conduct second technology review and AOA for SOF Venture.
- Develop Early User Test and Evaluation (EUT&E) test bed for SOF Venture.
- Specific details of individual technologies will be SECRET SPECAT.

Cost (\$ in millions)	FY 2003	FY 2004	FY 2005
Hard Target Defeat	11.8	12.5	7.4

**FY 2003 Accomplishments**

- Completed final preparations for C3I demonstration for the HDBTD classified weapons.
- Initiated construction of full-scale underground facility target complex at White Sands Missile Range (WSMR) to support Thermobaric ACTD.
- Completed a feasibility study for alternative warhead case designs and small-scale bombproof testing of explosive candidates.
- Began development of integrated planning and modeling tools to support Tunnel Defeat ACTD.

**FY 2004 Plans**

- Conduct and analyze C3I defeat demonstration.
- Develop Thermobaric (TB) explosive models to support mission planning/analysis tools and conduct sub-scale testing of explosive candidates.
- Complete construction of full-scale underground facility target complex.
- Complete Thermobaric warhead design and fuze integration evaluations at White Sands Missile Range.
- Verify tunnel response and ground shock high fidelity codes against known solutions to support Tunnel Target Defeat ACTD.

**FY 2005 Plans**

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- Conduct weapon qualification tests and initiate weapon flight qualification testing for Thermobaric ACTD.
- Develop weapon modules for mission planning/analysis tools for Thermobaric (TB) ACTD.
- Produce test assets for TB ACTD Operational Demonstration (DISCRETE FORTUNA).
- Complete Tunnel Target Defeat ACTD experiments used to support development of a ground shock simulator.
- Design ground shock simulator to support Tunnel Defeat ACTD.
- Complete and analyze C3I facility defeat demonstration
- Develop the IMPACT Proof of Concept Demonstration operational concept.

**C. Other Program Funding Summary:** N/A

**D. Acquisition Strategy:** N/A

**E. Major Performer:** Approximately \$9M of FY 2003 funding was obligated with Lawrence Livermore National Laboratory located in California in support of the Counterforce project.

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<b>Cost (\$ in millions)</b>	<b>FY 2003</b>	<b>FY 2004</b>	<b>FY 2005</b>	<b>FY 2006</b>	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>Cost to Complete</b>
Project BN – Unconventional Nuclear Warfare Defense	23.0	0	0	0	0	0	0	0

**A. Mission Description and Budget Item Justification:**

- The terrorist attacks of September 11, 2001 vividly demonstrated the need to expand the U.S. efforts to develop and field systems that can defend against threats posed by Weapons of Mass Destruction (WMD). One of the most unsettling and dangerous threats to the U.S. homeland is the possibility of nuclear terrorism using unconventional methods (i.e., delivery of an Improvised Nuclear Device (IND), Radiological Dispersal Device (RDD) or an actual nuclear weapon by other than missile or military aircraft). In July 2001, the Defense Science Board (DSB) Task Force Report on Unconventional Nuclear Warfare Defense further elaborated on this increasing threat to the U.S. To defend against this threat, Congress commended the Defense Science Board (DSB) report and directed the Unconventional Nuclear Warfare Defense (UNWD) program and funds to restore the historic balance between operational needs and sustaining R&D investments within the nuclear search arena in the FY 2002 DoD Appropriation. The UNWD program is designed to develop a prescribed list of equipment and procedures for a series of systems that can detect, give early warning, and establish a successful response to an unconventional nuclear warfare (UNW) attack. At its end state, the program’s equipment list and procedures will be rapidly transferable to other interested Federal, State, local or private organizations to provide such protection to their critical sites. This list and procedures will be developed through a rigorous series of experiments, demonstrations and red-teaming processes at four test-beds. UNWD, as authorized, is a joint DTRA-NNSA program directed to demonstrate integrated nuclear warfare protection systems at the four test-beds established for this purpose. The Terrorist Device Defeat (TDD) program is being used to restore the historic balance between operational needs and sustaining R&D investments.

**B. Accomplishments/Planned Program:**

<b>Cost (\$ in thousands)</b>	<b>FY 2003</b>	<b>FY 2004</b>	<b>FY 2005</b>
Unconventional Nuclear Warfare Defense	23.0	0	0

**FY 2003 Accomplishments**

- Establish a UNWD test bed at Naval Submarine Base Kings Bay, Georgia. Refine and demonstrate prototype system using available technology and exercise a CONOPS for response.
- Establish a UNWD test bed at Camp Lejeune, North Carolina. Continue to refine and demonstrate prototype system using available technology and exercise a CONOPS for response.
- Establish a UNWD test bed at Ft. Leonard Wood, Missouri. Continue to refine and demonstrate prototype system using available technology and exercise a CONOPS for response.

<b>Exhibit R-2a, RDT&amp;E Project Justification</b>		Date: February 2004
<b>APPROPRIATION/BUDGET ACTIVITY</b>		<b>PROJECT NAME AND NUMBER:</b>
RDT&E, Defense-Wide/Advanced Technology Development - BA 3	0603160BR	Project BN – Unconventional Nuclear Warfare Defense

Note: The Department reprogrammed a portion of FY 2003 funding that was appropriated as O&M funding for this effort to the RDT&E appropriation.

**FY 2004 Plans:** N/A

**FY 2005 Plans:** N/A

**C. Other Program Funding Summary:** N/A

**D. Acquisition Strategy:** N/A

**E. Major Performers:** Approximately \$15M of FY 2003 funding was obligated with the National Nuclear Security Administration located in New Mexico in support of the Unconventional Nuclear Warfare Defense.