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RDT&E Descriptive Summaries for Fiscal Year 2008/2009 President's Budget

February 2007
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DEFENSE THREAT REDUCTION AGENCY
Fiscal Year (FY) 2008/2009 Research and Development
Program Highlights

Funding Overview:

The Defense Threat Reduction Agency (DTRA) Research, Development, Test, and Evaluation (RDT&E) Program and Budget Submission for FY 2008/2009 implements the Department's strategic and fiscal guidance, which reduced the Agency's RDT&E funding by an average of $8 million per year beginning with FY 2008. A comparison of the FY 2007 President's Budget and FY 2008/2009 Program and Budget Submission funding by fiscal year is provided below:

($ in Thousands)

	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
FY 2007 PB	$439,623	$449,758	$458,788	$468,966		
FY 2008 Program	$416,050	$437,002	$446,316	$442,828	$448,049	$452,026

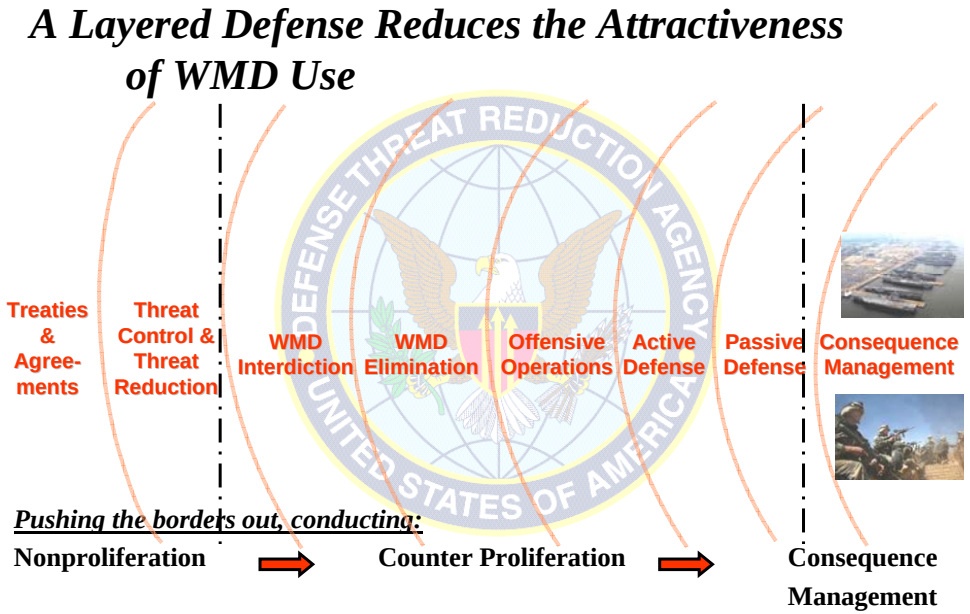
In developing the FY 2008/2009 program, DTRA has continued an aggressive realignment of Agency priorities, focused on developing the transformational capabilities required to combat weapons of mass destruction (WMD). Essential to this realignment has been the Agency's long-term effort to re-engineer its business practices, achieve all possible efficiencies, and not merely limit growth, but actually reduce Agency overhead as a percent of total program.

These economies have, in turn, freed up sufficient Operation and Maintenance (O&M) funding to sustain the Agency's growing warfighter support activities, while still permitting a net transfer of approximately $10 million across the program from the O&M to the RDT&E appropriation. Instead of eroding RDT&E funding levels, the Agency has preserved a strong research and development (R&D) base, the key to providing the future technologies needed to defeat the WMD threat.

Program Summary:

DTRA brings a dedicated, full-time, and integrated focus to its mission of safeguarding the U.S. and its allies from WMD (chemical, biological, radiological, nuclear and high-yield explosives) by providing capabilities to reduce, eliminate and counter the threat and mitigate its effects. DTRA provides integrated technical and operational solutions, and provides the intellectual capital to shape both Department of Defense (DoD) and national-level policies and strategies to address WMD.

Consistent with this mission, the FY 2008/2009 program has been carefully refocused across the spectrum of traditional, irregular, catastrophic and disruptive challenges facing DoD today. Key shifts in Agency investments include increasing RDT&E funding for advanced nuclear material detection and attribution, which are combating WMD capabilities emphasized in the Quadrennial Defense Review (QDR) to address the challenge of defeating loose nuclear weapons. The FY 2008/2009 program further provides for a variety of means supporting a layered defense strategy to counter the WMD threat.



At one end of this spectrum, under the nonproliferation pillar, is threat control and the implementation of arms control inspections and escort missions in support of various treaties and agreements. DTRA is developing the Arms Control Enterprise System (ACES) to implement treating compliance tracking in support of this pillar.

Under the counterproliferation pillar, DTRA's program supports the development of targeting tools and weapons technologies to hold WMD stockpiles and other specialized targets, wherever found, at risk. DTRA also assists DoD and other facilities to better safeguard themselves, and provides critical technologies to special reaction forces. DTRA's counterproliferation efforts support interdicting the movement of WMD, deterring attacks, and destroying caches of WMD when they are found.

Finally, under the consequence management pillar, DTRA supports the development of passive defense technologies to mitigate the effects of WMD and develops technologies to respond to, and aid in the recovery from, WMD strikes. DTRA employs its consequence management capabilities to assist the warfighter and homeland defense organizations to mitigate and rapidly recover from the employment of WMD.

DTRA's collective expertise has yielded a unique ability to provide customers with operationally relevant technical reachback support to help answer critical WMD concerns. DTRA is the principal source for the warfighter and other organizations to understand and plan against WMD threats. As DTRA contributes across the layered defense strategy, successes in one area are leveraged for other areas, resulting in synergies and operational efficiencies.

Summary of Compliance with Joint Programming Guidance:

Although no DTRA-specific direction was reflected in Joint Programming Guidance (JPG), combating WMD was repeatedly emphasized as a major DoD objective in the Strategic Planning Guidance (SPG). Accordingly, DTRA has taken the SPG objectives, as amplified by the QDR, and fashioned an FY 2008/2009 program that shifts resources to the critical areas of render safe, attribution, and nuclear detection. However, the resulting programs are constrained by DTRA's fiscal guidance.

QDR/Contingency Plan (CONPLAN) 7500 Implementation:

The QDR addressed issues critical to combating WMD and the War on Terrorism. A key issue addressed in the QDR is the challenge of defeating loose nuclear weapons. To deal with this challenge, the following enhanced capabilities are required:

- development of advanced nuclear material detection capabilities;
- enhanced operational attribution capability necessary to equip and forward deploy forces for global nuclear attribution coverage;
- expansion of the Nimble Elder program to meet the capacity requirements and response times necessary to support render safe operations.

DTRA has been working a series of programs to respond to these requirements. However, the Agency is not funded adequately to meet both its chartered mission responsibilities and responsibilities as reflected in the QDR, Strategic Planning Guidance (SPG), National Implementation Plan (NIP) for the War on Terrorism, and CONPLAN 7500. As previously discussed, the FY 2008/2009 program has been realigned to optimize funding of DTRA's chartered mission responsibilities. Besides reducing

infrastructure support levels, the Agency has also assumed risk in several legacy nuclear programs (Cold War simulators, radiation hardened microelectronics, and legacy decision tools) in order to increase FY 2008/2009 program investments that address the QDR priority of defeating loose nuclear weapons.

The DTRA has already made significant investments to grow initial capabilities in the areas of Render Safe, attribution, and nuclear material detection:

To support the Render Safe capability, DTRA has formed Technical Support Groups (TSGs) to provide forward deployed subject matter expertise and assistance. TSGs are military led, deployable teams that directly support the Combatant Commands (COCOMs) and other U.S. Government Agencies with the capability to counter WMD threats. The Nimble Elder capability provides equipment, maintenance, training, scientific, technical, and operational support (military and contractor), and exercise support within the COCOMs' areas of responsibility. In addition, research and development efforts focus on adaptive engineering for detection and identification of WMD materials. Performance of the Nimble Elder program is measured based on readiness to provide combat support with this classified capability as measured by team training, exercises, and training provided to others. Nimble Elder's standard is to provide timely and effective support based on the situation as required by COCOMs or requested by lead Federal agencies.

To support the attribution capability, DTRA is developing a capability to conduct forensic analysis of a nuclear explosion to attribute the source. As tasked in the SPG, DTRA has made recommendations regarding nuclear forensics for attribution. Meanwhile, the Agency is moving to operationalize a capability that will enable COCOMs to reach technical conclusions, thus aiding appropriate lead Federal agencies in attribution of a nuclear attack.

To support the nuclear material detection capability, DTRA has increased its investment in additional science and technology (S&T) initiatives. These efforts will accelerate development of large stand-off and high search rate technologies to address the problem of detecting nuclear materials, specifically:

- active interrogation to increase signal strength and standoff ranges;
- advanced signal processing to enhance speed and to allow operation in high noise environments;
- radiation source imaging technology to reject clutter.

The over-guidance resource requirement for nuclear material detection would accelerate the fielding of a ground-based prototype by 3 years and an air-based prototype by 6 years. Additional funding is required for nuclear material detection in order to achieve an objective capability level that can promptly and effectively meet the growing WMD threat.

Explanation of Funding Changes:

DTRA's philosophy for this program/budget submission was to transform the R&D program to meet the future WMD challenges and develop an improve logical orientation of both workload and funding for day-to-day management and oversight. DTRA accomplished this by:

- Investing in basic science and research to maintain a link to innovation and opportunity.
- Aligning our R&D budget to technology thrusts to increase responsiveness and flexibility.
- Providing a pathway for technology transitions from the laboratory to the battlefield.
- Focusing on DTRA unique capabilities in combating WMD.

To accomplish this move toward meeting the WMD future challenge, DTRA:

- Has consolidated its 6.2 program elements (PE 0602716BR and PE 0602717BR) into one PE (PE 0602718BR). This eliminates the confusion caused by two PEs with overlapping efforts for defeating the WMD threat.
- Added a 6.5 PE that increases DTRA's ability to fulfill its mission as a combat support agency. This PE provides DTRA the means to provide more support directly to the warfighter.
- Performed a top to bottom review of all workload to reorient efforts along project lines versus just along technical approaches. This resulted in the establishment of new projects that track between PEs and allows for a more complete picture of R&D program scope.

The net decrease to DTRA R&D budget in FY 2008 (-$23.5M) and FY 2009 (-$12.7M) is the result of the fiscal guidance reduction and the functional transfer of mature programs (Nuclear Management Information System (NUMIS)/Defense Integration and Management of Nuclear Data Services (DIAMONDS), War Plans, and Balanced Survivability Assessments (BSA)) from R&D to O&M.

Reductions to the R&D budget were partially offset through DTRA's realignment of the Agency's priorities to preserve a strong R&D base, allowing DTRA to provide the future technologies needed to defeat the WMD threat.

The next chart outlines a crosswalk of the PE/Project structure from the FY 2007 President's Budget position to the revised PE/Project structure for the FY 2008/2009 program/budget submission. It does not include resources associated with PE 0601000BR - DTRA Basic Research Initiative.

Crosswalk for RDT&E Programs
Defense Threat Reduction Agency

FY 2008 ($ in Millions)

			PE 0602718BR								PE 0603160BR							PE 0605000BR	PE 0302199BR
PE	Project		RA	RF	RG	RI	RL	RM	RR	RU	RA	RE	RF	RG	RI	RM	RT	RL	PE0303150BR
0602716BR	BB	-2.390	2.390																
	BD	-76.647	3.900		2.427	3.435	34.580	1.750		15.161								15.394	
	BE	-20.200	0.297						19.903										
	BF	-99.685	5.428	16.718	25.472			24.408					14.833						12.826
	BG	-17.672											8.638						9.034
Subtotal		-216.594	**12.015**	**16.718**	**27.899**	**3.435**	**34.580**	**26.158**	**19.903**	**15.161**	**0.000**	**0.000**	**23.471**	**0.000**	**0.000**	**0.000**	**0.000**	**15.394**	**21.860**
0602717BR	BB	-2.521	2.521																
	BC	-1.713																	1.713
	BG	-23.962	1.220	8.432		3.854									10.456				
	BH	-80.462	6.244	1.149		3.127							8.651		8.392	29.428	23.471		
Subtotal		-108.658	**9.985**	**9.581**	**0.000**	**6.981**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**8.651**	**0.000**	**18.848**	**29.428**	**23.471**	**0.000**	**1.713**
0603160BR	BB	-0.731									0.731								
	BI	-7.678									0.495		7.183						
	BJ	-20.532										20.532							
	BK	-80.430									7.900	23.577		20.470		28.483			
Subtotal		-109.371	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**9.126**	**44.109**	**7.183**	**20.470**	**0.000**	**28.483**	**0.000**	**0.000**	**0.000**
Total		-434.623	**22.000**	**26.299**	**27.899**	**10.416**	**34.580**	**26.158**	**19.903**	**15.161**	**9.126**	**44.109**	**39.305**	**20.470**	**18.848**	**57.911**	**23.471**	**15.394**	**23.573**
		434.623	**182.416**								**213.240**							**15.394**	**23.573**

FY 2009 ($ in Millions)

			PE 0602718BR								PE 0603160BR							PE 0605000BR	PE 0302199BR
PE	Project		RA	RF	RG	RI	RL	RM	RR	RU	RA	RE	RF	RG	RI	RM	RT	RL	PE0303150BR
0602716BR	BB	-2.424	2.424																
	BD	-77.916	2.125		2.450	0.630	36.650	1.803		18.312								15.946	
	BE	-20.143	0.157						19.986										
	BF	-103.160	10.964	16.808	28.298			27.608									19.482		
	BG	-17.716											6.711						11.005
Subtotal		-221.359	**15.670**	**16.808**	**30.748**	**0.630**	**36.650**	**29.411**	**19.986**	**18.312**	**0.000**	**0.000**	**6.711**	**0.000**	**0.000**	**0.000**	**19.482**	**15.946**	**11.005**
0602717BR	BB	-2.557	2.557																
	BC	-1.751																	1.751
	BG	-25.280	0.667	3.041		4.000							17.572						
	BH	-83.905	7.578	12.649		5.794							11.570		18.867	20.736	6.711		
Subtotal		-113.493	**10.802**	**15.690**	**0.000**	**9.794**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**29.142**	**0.000**	**18.867**	**20.736**	**6.711**	**0.000**	**1.751**
0603160BR	BB	-0.751									0.751								
	BI	-6.128									0.768		5.360						
	BJ	-20.916										20.916							
	BK	-82.111									2.168	24.508		20.550		34.885			
Subtotal		-109.906	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**3.687**	**45.424**	**5.360**	**20.550**	**0.000**	**34.885**	**0.000**	**0.000**	0.000
Total		-444.758	**26.472**	**32.498**	**30.748**	**10.424**	**36.650**	**29.411**	**19.986**	**18.312**	**3.687**	**45.424**	**41.213**	**20.550**	**18.867**	**55.621**	**26.193**	**15.946**	**12.756**
		444.758	**204.501**								**211.555**							**15.946**	**12.756**

Old Project Codes		New Project Codes	
BB - Small Business Innovative Research	BG - Nuclear Operations	RA - Systems Engineering	RL - Nuclear & Radiological Effects
BC - Force Protection & Technology Application	BH - System Survivability	RE - Counter-Terrorism Technologies	RM - WMD Battle Management
BD - Weapons Effects Technologies	BI - Detection Technology	RF - Detection Technology	RR - Test Infrastructure
BE - Testing Technologies & Integration	BJ - SOF Counterproliferation Support	RG - Advanced Energetics & Counter WMD Weapons	RT - Target Assessment Techologies
BF - CP Operational Warfighter Support	BK - Counterforce	RI - Nuclear Survivability	RU - Basic Research for WMD Knowledge Gaps

Exhibit R-1, RDT&E Programs
Defense Threat Reduction Agency

Appropriation: RDT&E **Date: February 2007**

TOA, $ in Millions

R-1 Line Item No	Program Element Number	Item	Budget Activity	FY 2006 Cost	FY 2007 Cost	FY 2008 Cost	FY 2009 Cost	FY 2010 Cost	FY 2011 Cost	FY 2012 Cost	FY 2013 Cost
1	0601000BR	DTRA Basic Research Initiative	1	0.000	9.962	5.000	5.000	5.000	5.000	5.000	5.000
18	0602716BR	WMD Defeat Technology	2	203.795	218.946	0.000	0.000	0.000	0.000	0.000	0.000
20	0602717BR	WMD Defense Technologies	2	107.443	110.602	0.000	0.000	0.000	0.000	0.000	0.000
21	0602718BR	WMD Defeat Technologies	2	0.000	0.000	182.416	204.501	208.908	212.035	212.414	210.547
29	0603160BR	Proliferation, Prevention and Defeat	3	105.361	116.630	213.240	211.555	216.641	211.934	217.807	225.275
109	0605000BR	WMD Defeat Capabilities	5	0.000	0.000	15.394	15.946	15.767	13.859	12.828	11.204
146	0605502BR	Small Business Innovative Research	6	6.579	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		Total RDT&E		423.178	456.140	416.050	437.002	446.316	442.828	448.049	452.026

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Basic Research – BA1	**R-1 ITEM NOMENCLATURE:** DTRA Basic Research Initiative; 0601000BR

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total 0601000BR Cost	**0.000**	**9.962**	**5.000**	**5.000**	**5.000**	**5.000**	**5.000**	**5.000**
BT - Basic Research for WMD Knowledge Gaps	0.000	9.962	0.000	0.000	0.000	0.000	0.000	0.000
RU - Basic Research for WMD Knowledge Gaps	0.000	0.000	5.000	5.000	5.000	5.000	5.000	5.000

A. Mission Description and Budget Item Justification:

Program provides for the discovery and development of fundamental knowledge and understanding by research performers drawn primarily from academia and world-class research institutions in government and industry. This leverages DoD $1 billion annual investment in basic research by ensuring a motivation within the scientific community to conduct research benefiting WMD-related defense missions and by improving Agency knowledge of other research efforts of potential benefit to DTRA non-proliferation, counterproliferation and consequence management efforts.

These efforts are closely coordinated with the Chem-Bio Technology Portfolio which executes a basic research program under the joint Chem-Bio Defense Program. Agency research interests are coordinated with those of Defense Advanced Research Projects Agency (DARPA) and Service basic research programs through the Defense Basic Research Advisory Group. DTRA will review its research interests at least annually to focus on those technology areas not clearly addressed by other basic research efforts.

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Basic Research – BA1	**R-1 ITEM NOMENCLATURE:** DTRA Basic Research Initiative; 0601000BR

B. Program Change Summary:

($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget	**0.000**	**5.000**	**5.000**	**5.000**
Current President's Budget	**0.000**	**9.962**	**5.000**	**5.000**
Total Adjustment	**0.000**	**4.962**	**0.000**	**0.000**
Congressional program reductions				
Congressional reductions		**-0.038**		
Congressional increases		**5.000**		
Reprogramming				
SBIR/STTR Transfer				
Other program adjustments				

Change Summary Explanation:

- This effort will change from Project BT to Project RU in FY 2008 to correspond with the overall R&D Program Element structure change.

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

D. Acquisition Strategy: Not Applicable.

E. Performance Metrics: Program cost, schedule and performance are measured using a systematic approach with approved programs and methods. The results of these measurements are presented to DTRA management on a regular basis to determine program effectiveness and to provide new direction as needed to ensure the efficient use of resources. Program specific performance metrics are outlined within each project description.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Basic Research – BA1	**PROJECT NAME AND NUMBER:** 0601000BR Project BT – Basic Research for WMD Knowledge Gaps

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
BT - Basic Research for WMD Knowledge Gaps	0.000	9.962	0.000	0.000	0.000	0.000	0.000	0.000

***** Funding and activities realigned to Project RU of PE 0601000BR in FY 2008.

A. Mission Description and Budget Item Justification:

Program provides for the discovery and development of fundamental knowledge and understanding by research performers drawn primarily from academia and world-class research institutions in government and industry. This leverages the DoD $1 billion annual investment in basic research by ensuring a motivation within the scientific community to conduct research benefiting WMD-related defense missions and by improving Agency knowledge of other research efforts of potential benefit to DTRA non-proliferation, counterproliferation and consequence management efforts.

These efforts are closely coordinated with the Chem-Bio Technology Portfolio which executes a basic research program under the joint Chem-Bio Defense Program. Agency research interests are coordinated with those of Defense Advanced Research Projects Agency (DARPA) and Service basic research programs through the Defense Basic Research Advisory Group. DTRA will review its research interests at least annually to focus on those technology areas not clearly addressed by other basic research efforts.

B. Accomplishments/Planned Program:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
BT - Basic Research for WMD Knowledge Gaps	0.000	9.962	0.000	0.000

***** Funding and activities realigned to Project RU of PE 0601000BR in FY 2008.

Performance Metrics:

- Project performance is measured via a combination of statistics including the number of publications generated, number of students trained in sciences and engineering supporting DoD's educational goals, number of research organizations participating, and percentage of participating universities on the *US News & World Report* "Best Colleges" list.

FY 2006 Accomplishments:

- Not Applicable.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Basic Research – BA1	**PROJECT NAME AND NUMBER:** 0601000BR Project BT – Basic Research for WMD Knowledge Gaps

FY 2007 Plans:

- Initiate basic research efforts, as funding permits, in the interest areas of: Radiological and Nuclear Detection Material Science; Novel High Energy Materials and Processes for Counter WMD Applications; Particulate And Agent Dynamics In Multiphase Turbulent Reacting Flows; Understanding Network Response to Attack; Adversarial Social Network Theory; Biodosimetry Biomarkers for Mixed Radiation Exposure; Thermal Bionanosensor Material Science; and Novel Methods for WMD Explosives Detection.

FY 2008 Plans:

- Not Applicable. See Project RU of PE 0601000BR.

FY 2009 Plans:

- Not Applicable. See Project RU of PE 0601000BR.

C. Other Program Funding Summary: Not Applicable.

D. Acquisition Strategy: Procurement methods include in-scope award through DTRA University Strategic Partnership, collaborative funding through other organizations, and competitive award through Broad Agency Announcement.

E. Major Performers: Not Applicable.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Basic Research – BA1	**PROJECT NAME AND NUMBER:** 0601000BR Project RU – Basic Research for WMD Knowledge Gaps

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
RU - Basic Research for WMD Knowledge Gaps	0.000	0.000	5.000	5.000	5.000	5.000	5.000	5.000

***** Funding and activities realigned from Project BT of PE 0601000BR in FY 2008.

A. Mission Description and Budget Item Justification:

Program provides for the discovery and development of fundamental knowledge and understanding by research performers drawn primarily from academia and world-class research institutions in government and industry. This leverages the DoD $1 billion annual investment in basic research by ensuring a motivation within the scientific community to conduct research benefiting WMD-related defense missions and by improving Agency knowledge of other research efforts of potential benefit to DTRA non-proliferation, counterproliferation and consequence management efforts.

These efforts are closely coordinated with the Chem-Bio Technology Portfolio which executes a basic research program under the joint Chem-Bio Defense Program. Agency research interests are coordinated with those of Defense Advanced Research Projects Agency (DARPA) and Service basic research programs through the Defense Basic Research Advisory Group. DTRA will review its research interests at least annually to focus on those technology areas not clearly addressed by other basic research efforts.

B. Accomplishments/Planned Program:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
RU - Basic Research for WMD Knowledge Gaps	0.000	0.000	5.000	5.000

***** Funding and activities realigned from Project BT of PE 0601000BR in FY 2008.

Performance Metrics:

- Project performance is measured via a combination of statistics including the number of publications generated, number of students trained in sciences and engineering supporting DoD's educational goals, number of research organizations participating, and percentage of participating universities on the *US News & World Report* "Best Colleges" list.

FY 2006 Accomplishments:

- Not Applicable. See Project BT of PE 0601000BR.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Basic Research – BA1	**PROJECT NAME AND NUMBER:** 0601000BR Project RU – Basic Research for WMD Knowledge Gaps

FY 2007 Plans:
- Not Applicable. See Project BT of PE 0601000BR.

FY 2008 Plans:
- Continue plans started in FY 2007.

FY 2009 Plans:
- Continue plans started in FY 2007.

C. Other Program Funding Summary: Not Applicable.

D. Acquisition Strategy: Procurement methods include in-scope award through DTRA University Strategic Partnership, collaborative funding through other organizations, and competitive award through Broad Agency Announcement.

E. Major Performers: Not Applicable.

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**R-1 ITEM NOMENCLATURE:** WMD Defeat Technology; 0602716BR

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total 0602716BR Cost	**203.795**	**218.946**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Project BB - Small Business Innovative Research*	0.000	2.411	0.000	0.000	0.000	0.000	0.000	0.000
Project BD - Weapons Effects Technologies	78.743	81.452	0.000	0.000	0.000	0.000	0.000	0.000
Project BE - Testing Technologies & Integration	22.880	19.915	0.000	0.000	0.000	0.000	0.000	0.000
Project BF - CP Operational Warfighter Support	92.086	98.357	0.000	0.000	0.000	0.000	0.000	0.000
Project BG - Nuclear Operations	10.086	16.811	0.000	0.000	0.000	0.000	0.000	0.000

*In year of execution, funding executed under PE 0605502BR "Small Business Innovative Research (SBIR)".

A. Mission Description and Budget Item Justification:

The mission of the DTRA is to safeguard America and its allies from WMD by reducing the present threat and preparing for the future threat. The approach to this challenge is contained within the three pillars of the DTRA mission**: non-proliferation, counterproliferation and consequence management. This program element specifically funds technologies necessary to defeat the threat from WMD.

Project BD provides the research and development underpinning for the next generation of agent defeat, deny and disrupt counterforce weapons to meet WMD threat. This project seeks answers to these challenges by using state-of-the-art science and engineering capabilities, novel payload development and evaluation capability, and precision laboratory and field testing capabilities.

Project BE provides a unique national test bed capability for simulated WMD facility characterization, weapon-target interaction, and WMD facility defeat testing by developing and maintaining test beds used by the DoD, the Services, the Combatant Commanders and other federal agencies to evaluate the implications of WMD, conventional, and other special weapon use against military or civilian systems/targets.

Project BF provides the bridge between the WMD Defeat Technology base and operational and intelligence community needs. The overall project goal is to support the Joint Chiefs of Staff, the warfighting Combatant Commanders and Services/agencies engaged in countering WMD threats and to protect the U.S. and its allies against military or terrorist use of WMD.

Project BG provides initiatives to locate, detect, defeat, and investigate the use of WMD against the U.S. and its allies, thereby protecting our citizens and

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**R-1 ITEM NOMENCLATURE:** WMD Defeat Technology; 0602716BR

critical infrastructures. The objective is to dissuade potential adversaries, whether they are nation states, terrorist groups, or criminal organizations, from using asymmetric means of war as a counter to U.S. conventional weapon superiority.

** Tasking for this mission is contained in the National Security Strategy, Unified Command Plan, National Strategy to Combat WMD, Counterproliferation Interdiction, National Strategy for Combating Terrorism, National Military Strategy, Strategic Planning Guidance, Contingency Planning Guidance, National Military Strategy for Combating WMD, National Military Strategic Plan for the War on Terrorism, Joint Strategic Capabilities Plan (including the Nuclear Annex), Security Cooperation Guidance, Quadrennial Defense Review, Nuclear Posture Review, and Defense Transformation Planning Guidance.

B. Program Change Summary:

($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget	**205.370**	**213.152**	**216.594**	**221.359**
Current President's Budget	**203.795**	**218.946**	**0.000**	**0.000**
Total Adjustment	**-1.575**	**5.794**	**-216.594**	**-221.359**
Congressional program reductions				
Congressional reductions		**-0.956**		
Congressional increases		**6.750**		
Reprogramming	**1.500**			
Classified Program Transfer				
Other Program Adjustments			**-216.594**	**-221.359**
SBIR/STTR Transfer	**-3.075**			

Change Summary Explanation:

- In FY 2008, the Program Element (PE) structure will change to improve organizational coordination and priorities. As part of this reorganization, the efforts under PE 0602716BR move to a new PE 0602718BR, titled WMD Defeat Technologies. The existing PE-WMD Defeat Technology

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2007
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workload and the associated funding for Projects BB, BD, BE, BF and BG are realigned into PE 0602718BR and its new set of Projects: RA - Systems Engineering and Innovation, RF - Detection Technology, RG - Advanced Energetics & Counter WMD Weapons, RI - Nuclear Survivability, RL - Nuclear & Radiological Effects, RM - WMD Battle Management, RR - Test Infrastructure, RT - Target Assessment Technologies, RU – Basic Research for WMD Knowledge Gaps.

- Additional funding transfers reflect the maturing of WMD technologies and result in the transition of program efforts to system development or operations. Funding transfers to other Program Elements included as part of this reorganization are:
  - FY 2008: $15.394M to PE 0605000BR; $23.471M to PE 0603160BR; $21.860M to PE 0303150BR and PE 0302199BR.
  - FY 2009: $15.964M to PE 0605000BR; $26.193M to PE 0603160BR; $11.005M to PE 0303150BR and PE 0302199BR

- The tables below identify funding realignments by Project from PE 0602716BR to PE 0602718BR, PE 0603160BR and PE 0605000BR in both FY 2008 and FY 2009.

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**R-1 ITEM NOMENCLATURE:** WMD Defeat Technology; 0602716BR

FY 2008 Cost ($ in Millions)													
PE 0602716BR		**PE 0602718BR**								**Transfer to other PEs**			Total
Project	Cost	RA	RF	RG	RI	RL	RM	RR	RU	0603160BR	0605000BR	Other*	
BB	2.390	2.390	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**2.390**
BD	76.647	3.900	0.000	2.427	3.435	34.580	1.750	0.000	15.161	0.000	15.394	0.000	**76.647**
BE	20.200	0.297	0.000	0.000	0.000	0.000	0.000	19.903	0.000	0.000	0.000	0.000	**20.200**
BF	99.685	7.547	16.718	25.472	0.000	0.000	24.408	0.000	0.000	14.833	0.000	10.707	**99.685**
BG	17.672	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.638	0.000	9.034	**17.672**
Total	**216.594**	**14.134**	**16.718**	**27.899**	**3.435**	**34.580**	**26.158**	**19.903**	**15.161**	**23.471**	**15.394**	**19.741**	**216.594**

* PE 0302199BR & PE 0303150BR

FY 2009 Cost ($ in Millions)													
PE 0602716BR		**PE 0602718BR**								**Transfer to other PEs**			Total
Project	Cost	RA	RF	RG	RI	RL	RM	RR	RU	0603160BR	0605000BR	Other*	
BB	2.424	2.424	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**2.424**
BD	77.916	2.125	0.000	2.450	0.630	36.650	1.803	0.000	18.312	0.000	15.946	0.000	**77.916**
BE	20.143	0.157	0.000	0.000	0.000	0.000	0.000	19.986	0.000	0.000	0.000	0.000	**20.143**
BF	103.160	10.964	16.808	28.298	0.000	0.000	27.608	0.000	0.000	19.482	0.000	0.000	**103.160**
BG	17.716	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.711	0.000	11.005	**17.716**
Total	**221.359**	**15.670**	**16.808**	**30.748**	**0.630**	**36.650**	**29.411**	**19.986**	**18.312**	**26.193**	**15.946**	**11.005**	**221.359**

* PE 0302199BR & PE 0303150BR

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

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**R-1 ITEM NOMENCLATURE:** WMD Defeat Technology; 0602716BR

D. Acquisition Strategy: Not Applicable.

E. Performance Metrics: Program cost, schedule and performance are measured using a systematic approach with approved programs and methods. The results of these measurements are presented to DTRA management on a regular basis to determine program effectiveness and to provide new direction as needed to ensure the efficient use of resources. Program specific performance metrics are outlined within each project description.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602716BR Project BB – Small Business Innovative Research

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project BB - Small Business Innovative Research*	0.000	2.411	0.000	0.000	0.000	0.000	0.000	0.000

*In year of execution, funding executed under PE 0605502BR "Small Business Innovative Research (SBIR)".

A. Mission Description and Budget Item Justification:

This project provides the means for stimulating technological innovation in the private sector, strengthens the role of small business in meeting DoD R&D needs, fosters and encourages participation of minority and disadvantaged businesses in technological innovation, and increases the commercial application of DoD supported R&D results. These efforts are responsive to Public Law 106-554.

B. Accomplishments/Planned Program:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Project BB - Small Business Innovative Research*	0.000	2.411	0.000	0.000

*In year of execution, funding executed under PE 0605502BR "Small Business Innovative Research (SBIR)".

Performance Metrics:

- Number of phase I awards supporting innovative technology development.
- Number of phase II and III awards leading to technology transition.

FY 2006 Accomplishments:

- See Project BB of PE 0605502BR.

FY 2007 Plans:

- Fund 43.0 percent of DTRA SBIR investment including:
  - Up to ten Phase I SBIR contracts to perform feasibility studies on FY 2007 topics.
  - Up to two Phase II SBIR contracts to perform full research and development on promising FY 2006 Phase I efforts.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602716BR Project BB – Small Business Innovative Research

- Share of incremental funding of FY 2006 Phase I and FY 2005 Phase II SBIR contract awards.

FY 2008 Plans:
- Not Applicable. See PE 0605502BR.

FY 2009 Plans:
- Not Applicable. See PE 0605502BR.

C. Other Program Funding Summary: Not Applicable.

D. Acquisition Strategy: Not Applicable.

E. Major Performers: Not Applicable.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602716BR Project BD – Weapons Effects Technologies

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project BD - Weapons Effects Technologies	78.743	81.452	0.000	0.000	0.000	0.000	0.000	0.000

* Funding and activities realigned into Projects RA, RG, RI, RL, RM and RU of PE 0602718BR and PE 0605000BR in FY 2008.

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

This project provides an over-arching framework for all Chemical, Biological, Radiological, Nuclear and High Explosive related modeling and simulation tools.

- Provides the warfighter and military engineers with state-of-the-art targeting support weapons effects models, structural dynamic models and computational tools for use in weaponeering, post strike assessment and force/mission protection. Develops, validates, and verifies lethality/vulnerability models and integrates those models into computational tools for expedient or deliberate pre-strike planning, post-strike assessment, intelligence analysis, and other related missions. Provide targeting support technology, tools and expertise in the areas of forensic analysis, vulnerability assessments and weapon/structure interactions in support of anti-terrorism and force protection missions.
- Provides nuclear weapon effects modeling and simulation, common DoD nuclear weapon stockpile and foreign nuclear weapon standard data handbooks for use in developing modeling and/or predictions of effects and subject matter expertise in nuclear weapon effects for joint DoD and Department of Energy nuclear studies and operational exercises.
- Develops an automated software system to provide the means to accurately predict the effects of hazardous material released into the atmosphere and its impact on civilian and military populations. The system uses integrated source terms, high-resolution weather forecasts and atmospheric transport & dispersion analyses to model hazard areas produced by military or terrorist incidents and industrial accidents.
- Capitalizes on expertise developed through DoD, other U.S. government, and non-government supported research in various technologies to support, maintain and sustain the WMD technology base. Additionally, identifies gaps in these capabilities and initiates programs to fill them.
- Provides validated modeling and simulation tools to enable rapid access for planning, emergency response and assessment capabilities across a broad spectrum of conventional, unconventional and nuclear scenarios. Significant initiatives focus on extending legacy and future capabilities through web-services and web-browser based delivery methods.
- Develops and validates Chemical and Biological Weapon defeat and disrupt weapon effectiveness and collateral release diagnostics for the warfighter to mitigate the impact of the effects of WMD on all aspects of warfighting, to include communications, radar and optical sensor systems.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602716BR Project BD – Weapons Effects Technologies

B. Accomplishments/Planned Program:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Project BD - Weapons Effects Technologies	78.743	81.452	0.000	0.000

*Funding and activities realigned into Projects RA, RG, RI, RL, RM and RU of PE 0602718BR and PE 0605000BR in FY 2008.

Performance Metrics:
- Number of software versions delivered to customer.
- Number of tests completed.
- Number of payloads developed.

FY 2006 Accomplishments:
- Initiated development and validation of live simulant tunnel test diagnostic technology for the evaluation of Agent Defeat variant weapons designed for employment against WMD targets.
- Continued development of the Kinetic Fireball submunition concept supporting counterforce agent defeat, deny, disrupt.
- Delivered Integrated Munitions Effects Assessment (IMEA) with Warfighter Wizard to assist in quick development of target solutions, and Vulnerability Assessment and Protection Option with improved Human Injury and Structural Element Response predictions.
- Implemented penetration data from tests of weapons against multi-story buildings to improve weaponeering methods against these targets.
- Identified DoD nuclear weapons infrastructure elements to support the Nuclear Posture Review and other strategic planning requirements.

FY 2007 Plans:
- Initiate development of a directed energy centric Agent Deny/Disrupt payload supporting counterforce agent defeat, deny, disrupt.
- Begin development of soft target agent defeat technologies supporting counterforce agent defeat, deny, disrupt.
- Deliver IMEA which will incorporate architectural improvements and enhanced modeling techniques.
- Deliver Improved Groundshock Vulnerability Number models used to assess vulnerability of deeply buried facilities.

FY 2008 Plans:
- Not Applicable. See Projects RA, RG, RI, RL, RM and RU of PE 0602718BR and PE 0605000BR in FY 2008.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602716BR Project BD – Weapons Effects Technologies

FY 2009 Plans:

- Not Applicable. See Projects RA, RG, RI, RL, RM and RU of PE 0602718BR and PE 0605000BR in FY 2008.

C. Other Program Funding Summary: Not Applicable.

D. Acquisition Strategy: Not Applicable.

E. Major Performers: Not Applicable.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602716BR Project BE – Testing Technologies and Integration

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project BE - Testing Technologies & Integration	22.880	19.915	0.000	0.000	0.000	0.000	0.000	0.000

***** Funding and activities realigned into Projects RA and RR of PE 0602718BR in FY 2008.

A. Mission Description and Budget Item Justification:

This project provides a unique national test bed capability for simulated WMD facilities characterization, weapon-target interaction, and WMD facilities defeat testing to respond to operational needs by developing and maintaining test beds used by the DoD, the Services, the Combatant Commanders and other federal agencies to evaluate the implications of WMD, conventional, and other special weapon use against U.S. military or civilian systems and targets. Fifty years of testing expertise is leveraged to investigate weapons effects and target response across the spectrum of hostile environments that could be created by proliferant nations or terrorist organizations with access to advanced conventional weapons or WMD (nuclear, biological and chemical). This project maintains testing infrastructure to support the requirements of warfighters, other government agencies, and friendly foreign countries. It develops testing strategies and a WMD test bed infrastructure focusing on the structural response of buildings and Hard & Deeply Buried Targets that house nuclear, biological, and chemical facilities; and supports full and sub-scale tests that focus on weapon-target interaction with fixed soft and hardened facilities to include aboveground facilities, cut-and-cover facilities and deep underground tunnels.

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Project BE - Testing Technologies & Integration	22.880	19.915	0.000	0.000

*Funding and activities realigned into Projects RA and RR of PE 0602718BR in FY 2008.

Performance Metrics:

- Number of tests executed safely, i.e. no loss of life or limb, no unintentional significant damage of property.
- Number of tests that go through the milestone review process.
- Number of test activities that will undergo environmental assessment consistent with existing Environmental Impact Statements.

FY 2006 Accomplishments:

- Provided unique national test bed capabilities and support for 120 tests for weapon-target interaction and WMD threat reduction programs – 100% of tests executed safely and underwent milestone review and environmental assessment processes.

- Supported Program Environmental Impact Statement process to support DTRA in proposed expansion of testing and related activities at White Sands Missile Range.
- Cleaned up Federal Facilities Agreement and Consent Order (FFACO) sites at the Nevada Test Site.
- Continued to maintain the Large Blast and Thermal Simulator in test ready condition, with the ability to conduct curtain wall tests and blast tests on short notice.
- Completed Large Test Structure-2 soil clean-up including disposal of waste chemical/biological simulants (White Sands Missile Range).

FY 2007 Plans:

- Construct a building for Test Operations Technology and Test Support (TOTTS), fabrication facility and Rotary Percussion Sounding System.
- Thermal Radiation Simulator (TRS) Site Closure.
- N-Tunnel Closure, T-Tunnel Closure and closure laydown yard (Nevada Test Site).
- Biological simulant disposal and Program Environmental Impact Statement (PEIS) Completion (White Sands Missile Range).
- Magnetic flyer (Magflyer) Capacitor Bank Disposal (Kirtland AFB).

FY 2008 Plans:

- Not Applicable. See Projects RA and RR of PE 0602718BR in FY 2008.

FY 2009 Plans:

- Not Applicable. See Projects RA and RR of PE 0602718BR in FY 2008.

C. Other Program Funding Summary: Not Applicable.

D. Acquisition Strategy: Not Applicable.

E. Major Performers: Not Applicable.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602716BR Project BF - CP Operational Warfighter Support

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project BF - CP Operational Warfighter Support	92.086	98.357	0.000	0.000	0.000	0.000	0.000	0.000

* Funding and activities realigned into Projects RA, RG, and RM of PE 0602718BR, Project RT of PE 0603160BR, and PE 0303150BR and PE 0302199BR in FY 2008.

A. Mission Description and Budget Item Justification:

This project integrates technologies developed in other WMD defeat projects, to conduct a full spectrum of tests to verify capability enhancement, to expose customers to these capabilities in exercises, wargames and demonstrations, to integrate WMD defeat technologies into customer operations, and to support use of these capabilities during contingency operations.

Provides the warfighter with the capabilities and understanding for countering the use and effect of WMD and weapons of mass effects through the advancement of simulation technology, assessment of operational impact, development of collaborative capabilities and access to mature computer models. Provide an interface between DTRA model developers and the weapons effects simulation community to ensure relevance of DTRA models in interactive simulations through compliance with standards and protocols. Use advanced simulations to assist the warfighter in quantifiably assessing operational theater plans and post-attack warfighting effectiveness and to develop alternatives to mitigate the effects of WMD.

It develops advanced energetics and weapon concepts and technologies for tunnel defeat as recommended in the Hard & Deeply Buried Targets (HDBT) Science and Technology Master Plan; develops, demonstrates and transitions to the warfighter end-to-end capabilities to defeat HDBT. These capabilities embody synergistic effects of optimizing attack planning, the weapon and kill mechanism, and the tactics, techniques and procedures necessary to defeat a spectrum of HDBT. This supports warfighting requirements derived from the HDBT Initial Capabilities Document and RDT&E priorities set by the Office of the Under Secretary of Defense for Acquisition, Technology and Logistics.

Provides support to the Intelligence Community and the Combatant Commands by providing technologies and processes to find and characterize hard and deeply buried targets assess the results of attacks then against those targets.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602716BR Project BF - CP Operational Warfighter Support

B. Accomplishments/Planned Program:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Project BF - CP Operational Warfighter Support	92.086	98.357	0.000	0.000

*Funding and activities realigned into Projects RA, RG and RM of PE 0602718BR, Project RT of PE 0603160BR, and PE 0303150BR and PE 0302199BR in FY 2008.

Performance Metrics:

- Number of large-scale tests completed.
- Number of target characterizations, 3-D target models and weaponeering solutions delivered to the Combatant Commanders and Intelligence Community in response to prioritized requirements.
- Percent increase of Counter WMD weapon performance compared to fielded weapons (e.g. Bomb, Live Unit (BLU)-109 and BLU-113).
- Number of targeting tools tested and delivered.

FY 2006 Accomplishments:

- Conducted five weapon lethality tests against tunnel targets including Joint Air to Surface Standoff Missile (JASSM), Joint Standoff Weapon (JSOW-C), Massive Ordnance Air-Blast (MOAB), near-simultaneous skip bombing, and optimized dual delivery for enhanced penetration.
- Conducted Massive Ordnance Penetrator (MOP) scaled penetration and lethality testing supporting full scale demonstrations planned for FY 2007.
- Completed construction and outfitting of tunnel facility testbed to support massive ordnance tests at the Capitol Peak Tunnel, White Sands Missile Range.
- Analyzed penetration data from tests of weapons against multi-story buildings to improve weaponeering methods against these targets.
- Delivered over 200 engineering characterizations and 700 3-D models of underground facilities to the warfighting commands and intelligence community to hold targets at risk.
- Conducted two exercises with warfighters to assess the utility of target characterization tools and processes.
- Trained over 200 DoD and intelligence community personnel on basic and advanced underground target characterization techniques to enhance the expertise of the targeting community.
- Conducted requirements review to initiate development of Integrated Sensor System for support of Underground Facility and WMD target

characterization.

- Completed construction and outfitting of tunnel facility testbed to support full-sized ordnance lethality tests at Dugway Proving Ground.

FY 2007 Plans:

- Design and begin construction of the multi-story demonstration testbed with basement bunker defeat demonstration that will support weapon effects testing and the development of Air Force tactics, techniques, and procedures.
- Conduct large scale testing of weapons against a heavily protected bunker using existing weapons to fill gaps in weapon effects knowledge base and improve WMD planning tools.
- Begin integration of sensor systems data into our software tools to facilitate target status assessment for warfighters.
- Investigate adding WMD target characterization and assessment capabilities to the Hard Target Research and Analysis Center for program start in FY 2008.
- Continue Integrated Sensor System ground sensor requirements definition and begin system development to provide near-real-time data feed for enhanced target characterization and prompt bomb damage assessment.
- Provide target weaponeering recommendations to Targeting / Weaponeering Assistance Cell.
- Conduct full-size in-tunnel ordnance lethality tests at the DTRA Dugway Proving Ground tunnel testbed.

FY 2008 Plans:

- Not Applicable. See Projects RA, RG, and RM of PE 0602718BR, Project RT of PE 0603160BR, and PE 0303150BR and PE 0302199BR in FY 2008.

FY 2009 Plans:

- Not Applicable. See Projects RA, RG, and RM of PE 0602718BR, Project RT of PE 0603160BR, and PE 0303150BR and PE 0302199BR in FY 2008.

C. Other Program Funding Summary: Not Applicable.

D. Acquisition Strategy: Not Applicable.

E. Major Performers: Not Applicable.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602716BR Project BG – Nuclear Operations

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project BG - Nuclear Operations	10.086	16.811	0.000	0.000	0.000	0.000	0.000	0.000

***** Funding and activities realigned into Projects RF of PE 0603160BR in FY 2008.

A. Mission Description and Budget Item Justification:

This project conducts the research, development, test, and evaluation required to carry out the agency's specified and implied missions articulated in the National Military Strategy, the Nuclear Posture Review, the Quadrennial Defense Review, and those directed by the Joint Chiefs of Staff in the Joint Strategic Capabilities Plan Nuclear Annex. It concurrently lays a foundation for potential transformation activities within the nuclear arena as identified in DoD's Transformation Planning Guidance.

It enhances deterrence and proactively supports the agency's mission of WMD threat reduction. The research and development is focused on adapting engineering and integrating current or new technologies into user -friendly instruments to meet the WMD threat. Initiatives supported by this project include, but are not limited to: integrating and applying new technological advances to improving capabilities for locating and detecting, and defeating and attributing, old and emerging WMD threats in both civilian and military areas (when possible or feasible, other government agencies' expertise or technologies are leveraged, most notably the Department of Energy and the Domestic Nuclear Detection Office; conducting critical nuclear research, development, test and evaluation in support of the Combatant Commanders, Military Services, JCS and Office of the Secretary of Defense through the oversight and response to the direction of the Nuclear Weapons Council; assesses the continuously evolving Chemical, Biological, Radiological, Nuclear and High Explosives threat posed by old and new actors in the 21st Century.

B. Accomplishments/Planned Program:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Project BG - Nuclear Operations	10.086	16.811	0.000	0.000

*Funding and activities realigned into Projects RF of PE 0603160BR in FY 2008.

Performance Metrics:

- Number of successful flight tests completed.
- Number of products provided to Special Operations Forces customers.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602716BR Project BG – Nuclear Operations

- Number of databases updated/enhanced.

FY 2006 Accomplishments:
- Completed airlift and participation in Ardent Sentry 2006 and Hawaii 'A Kele Exercise.
- Populated and updated the SENTRY/SNIPER databases. Added three-dimensional display/graphic features.
- Continued to explore technologies that can improve and/or enhance rapid deployable radiation detection equipment and tracking system. Collaborated with other agencies such as the newly created Domestic Nuclear Detection Office (DNDO) to leverage from their transformational research. Evaluated DNDO Broad Area Announcement on radiation detection R&D efforts.
- Delivered Handheld Chemical Detector prototype for Special Operations Forces (SOF) testing/evaluation.
- Delivered limited initial operational integrated attribution capability for the terrorist device defeat program.

FY 2007 Plans:
- Initiate Gladiator ground collection development to provide next-generation ground collection capability-semi-autonomous operations, improved ruggedness, increased load capacity and longer battery life.
- Complete flight tests for the Unmanned Aerial Vehicle (UAV) collection pod.
- Enhance/maintain the SENTRY/SNIPER databases. Expand three-dimensional features to include real-time fly thru models. Integrate chemical and biological weapon information into a comprehensive WMD data base.
- Develop sensors to detect WMD threats as far forward as possible and in all operational environments. Develop the capability to integrate data with a future interagency comprehensive, all domain WMD detection architecture (compatible with the Domestic Nuclear Detection Office concept), from collection to dissemination.
- Develop equipment that is waterproof, shockproof, and resistant to extreme conditions and sustained employment without significant operational degradation. Develop smaller, lighter weight detector systems for more diverse field employment.
- Test/evaluate Handheld Chemical Detector prototype for SOF forces.

FY 2008 Plans:
- Not Applicable. See Projects RF of PE 0603160BR.

FY 2009 Plans:
- Not Applicable. See Projects RF of PE 0603160BR.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602716BR Project BG – Nuclear Operations

C. Other Program Funding Summary: Not Applicable.

D. Acquisition Strategy: Not Applicable.

E. Major Performers: Not Applicable.

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**R-1 ITEM NOMENCLATURE:** WMD Defense Technologies; 0602717BR

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total 0602717BR Cost	**107.443**	**110.602**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Project BB - Small Business Innovative Research*	0.000	2.509	0.000	0.000	0.000	0.000	0.000	0.000
Project BC - Force Protection & Technology App.	1.119	1.616	0.000	0.000	0.000	0.000	0.000	0.000
Project BG - Nuclear Operations	27.031	22.199	0.000	0.000	0.000	0.000	0.000	0.000
Project BH - System Survivability	79.293	84.278	0.000	0.000	0.000	0.000	0.000	0.000

*In year of execution, funding executed under PE 0605502BR "Small Business Innovative Research (SBIR)".

A. Mission Description and Budget Item Justification:

The mission of the DTRA is to safeguard America and its allies from WMD by reducing the present threat and preparing for the future threat. This mission directly reflects several national and DoD-level documents to include the National Security Strategy, Unified Command Plan, National Strategy to Combat WMD, Counterproliferation Interdiction, National Strategy for Combating Terrorism, National Military Strategy, Strategic Planning Guidance, Contingency Planning Guidance, National Military Strategy for Combating WMD, National Military Strategic Plan for the War on Terrorism, Joint Strategic Capabilities Plan (including the Nuclear Annex), Security Cooperation Guidance, Quadrennial Defense Review, Nuclear Posture Review, and Defense Transformation Planning Guidance (TPG). To achieve this mission, DTRA has identified principal objectives along with strategies and tasks to ensure the objectives are met. Three of these objectives are deter the use of WMD, reduce the present threat and prepare for the future threat. A focused, strong threat reduction technology base is critical to achieving these objectives and is closely tied with the operational support programs that make up its combat support mission. DTRA has taken the steps to develop this technology base and provide a foundation for transformational activities within the WMD arena as delineated in the TPG.

Project BC provides assessment and mitigation technologies through mission vulnerability assessments of strategic systems while ensuring that recommendations for improvement are implemented through training, design, and construction to enhance force protection, vulnerability mitigation, and collective protection.

Project BG provides analyses and experimental data to identify risks to the nation’s nuclear weapon systems in peacetime operations; evaluations to identify security weapons systems vulnerabilities in various environments; and support to ensure continued nuclear stockpile sustainability and viability.

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**R-1 ITEM NOMENCLATURE:** WMD Defense Technologies; 0602717BR

Project BH develops and demonstrates affordable strategies and hardening technologies for U.S. systems and forces; conducts component, subsystem, system and end-to-end performance tests and assessments; and provides support on technical and policy matters that relate to the acquisition of survivable systems and strategic system sustainment.

B. Program Change Summary:

($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget	**108.929**	**105.021**	**108.658**	**113.493**
Current President's Budget	**107.443**	**110.602**	**0.000**	**0.000**
Total Adjustment	**-1.486**	**5.581**	**-108.658**	**-113.493**
Congressional program reductions				
Congressional reductions		**-0.419**		
Congressional increases	**1.000**	**6.000**		
Reprogramming				
Classified Program Transfer				
Other Program Adjustments			**-108.658**	**-113.493**
SBIR/STTR Transfer	**-2.486**			

Change Summary Explanation:

- In FY 2008, the Program Element (PE) structure will change to improve organizational coordination and priorities. As part of this reorganization, the efforts under PE 0602717BR move to a new PE 0602718BR, titled WMD Defeat Technologies. The existing PE-WMD Defense Technologies workload and the associated Projects BB, BC, BG, and BH are realigned into PE 0602718BR and its new set of Projects: RA - Systems Engineering and Innovation, RF - Detection Technology, RG - Advanced Energetics & Counter WMD Weapons, RI - Nuclear Survivability, RL - Nuclear & Radiological Effects, RM - WMD Battle Management, RR - Test Infrastructure, RT - Target Assessment Technologies, RU – Basic Research for WMD Knowledge Gaps.
- Additional funding transfers reflect the maturing of WMD technologies and result in the transition of program efforts to system development or operations. Funding transfers to other Program Elements included as part of this reorganization are:

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**R-1 ITEM NOMENCLATURE:** WMD Defense Technologies; 0602717BR

- FY 2008: $80.398M to PE 0603160BR; $1.713M to PE 0302199BR.
- FY 2009: $75.456M to PE 0603160BR; $1.751M to PE 0302199BR.

- The table below shows funding realignments, by Project, from PE 0602717BR to PE 0602718BR, PE 0603160BR and PE 0302199BR in both FY 2008 and FY 2009.

FY 2008 Cost ($ in Millions)							
PE 0602717BR		**PE 0602718BR**			**Transfer to other PEs**		Totals
Project	Cost	RA	RF	RI	0603160BR	0302199BR	
BB	2.521	2.521	0.000	0.000	0.000	0.000	**2.521**
BC	1.713	0.000	0.000	0.000	0.000	1.713	**1.713**
BG	23.962	0.000	0.000	0.000	23.962	0.000	**23.962**
BH	80.462	7.464	9.581	6.981	56.436	0.000	**80.462**
Totals	**108.658**	**9.985**	**9.581**	**6.981**	**80.398**	**1.713**	**108.658**

FY 2009 Cost ($ in Millions)							
PE 0602717BR		**PE 0602718BR**			**Transfer to other PEs**		Totals
Project	Cost	RA	RF	RI	0603160BR	0302199BR	
BB	2.557	2.557	0.000	0.000	0.000	0.000	**2.557**
BC	1.751	0.000	0.000	0.000	0.000	1.751	**1.751**
BG	25.28	0.667	3.041	4.000	17.572	0.000	**25.280**
BH	83.905	7.578	12.649	5.794	57.884	0.000	**83.905**
Totals	**113.493**	**10.802**	**15.690**	**9.794**	**75.456**	**1.751**	**113.493**

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

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**R-1 ITEM NOMENCLATURE:** WMD Defense Technologies; 0602717BR

D. Acquisition Strategy: Not Applicable.

E. Performance Metrics: Program cost, schedule and performance are measured using a systematic approach with approved programs and methods. The results of these measurements are presented to DTRA management on a regular basis to determine program effectiveness and to provide new direction as needed to ensure the efficient use of resources. Program specific performance metrics are outlined within each project description.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602717BR Project BB – Small Business Innovative Research

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project BB - Small Business Innovative Research*	0.000	2.509	0.000	0.000	0.000	0.000	0.000	0.000

*In year of execution, funding executed under PE 0605502BR "Small Business Innovative Research (SBIR)".

A. Mission Description and Budget Item Justification:

This project provides the means for stimulating technological innovation in the private sector, strengthens the role of small business in meeting DoD R&D needs; fosters and encourages participation of minority and disadvantaged businesses in technological innovation; and increases the commercial application of DoD supported R&D results. These efforts are responsive to Public Law 106-554.

B. Accomplishments/Planned Program:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Project BB - Small Business Innovative Research*	0.000	2.509	0.000	0.000

*In year of execution, funding executed under PE 0605502BR "Small Business Innovative Research (SBIR)".

Performance Metrics:

- Number of phase I awards supporting innovative technology development.
- Number of phase II and III awards leading to technology transition.

FY 2006 Accomplishments:

- See Project BB of PE 0605502BR.

FY 2007 Plans:

- Fund 43.0 percent of DTRA SBIR investment including:
  - Up to ten Phase I SBIR contracts to perform feasibility studies on FY 2007 topics.
  - Up to two Phase II SBIR contracts to perform full research and development on promising FY 2006 Phase I efforts.
  - Share of incremental funding of FY 2006 Phase I and FY 2005 Phase II SBIR contract awards.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602717BR Project BB – Small Business Innovative Research

FY 2008 Plans:

- Not Applicable. See PE 0605502BR.

FY 2009 Plans:

- Not Applicable. See PE 0605502BR.

C. Other Program Funding Summary: Not Applicable.

D. Acquisition Strategy: Not Applicable.

E. Major Performers: Not Applicable.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602717BR Project BC – Force Protection & Technology Applications

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project BC - Force Protection & Technology App.	1.119	1.616	0.000	0.000	0.000	0.000	0.000	0.000

*Funding and activities realigned into PE 0302199BR in FY 2008.

A. Mission Description and Budget Item Justification:

This project develops assessment and mitigation technologies to conduct mission vulnerability assessments of strategic U.S./Allied systems leading to the development of investment strategies for improved survivability. This project also ensures that assessment training programs, engineering designs, and new construction embody sound force protection, vulnerability mitigation, and collective protection principles. Some of the project's products and services include: Balanced Survivability Assessments (BSA); Vulnerability out-briefs and written reports; overall force protection vulnerability trend data; the National and North Atlantic Treaty Organization (NATO) conferences for Underground Facility Managers; and Multi-disciplined technical engineering expertise support.

B. Accomplishments/Planned Program:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Project BC - Force Protection & Technology App.	1.119	1.616	0.000	0.000

*Funding and activities realigned into PE 0302199BR in FY 2008.

Performance Metrics:

- Fidelity of real-time information provided during on-site out-briefs, with a goal of 95%.
- Number of assessments completed, with a target of six per year.
- Timeliness and accuracy of follow-on written reports, with a goal of 90 days or less following completion of assessment.

FY 2006 Accomplishments:

- Conducted six balanced survivability and integrated vulnerability assessments of DoD facilities and systems as tasked by Combatant Commands, the Joint Staff, and Office of the Secretary of Defense. Twelve assessments have been accomplished with high fidelity of information accuracy > (95%) and in a timely manner (< 90 days).

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602717BR Project BC – Force Protection & Technology Applications

FY 2007 Plans:

- Conduct 12 balanced survivability and integrated vulnerability assessments of DoD facilities and systems as tasked by Combatant Commands, the Joint Staff, and Office of the Secretary of Defense. Conduct balanced vulnerability assessment of defense and critical national infrastructure facilities and systems. Conduct architectural analyses to determine systemic vulnerabilities.

FY 2008 Plans:

- Not Applicable. See PE 0302199BR.

FY 2009 Plans:

- Not Applicable. See PE 0302199BR.

C. Other Program Funding Summary: Not Applicable.

D. Acquisition Strategy: Not Applicable.

E. Major Performers: Not Applicable.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602717BR Project BG – Nuclear Operations

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project BG - Nuclear Operations	27.031	22.199	0.000	0.000	0.000	0.000	0.000	0.000

***** Funding and activities realigned into Projects RA, RF and RI of PE 0602718BR and PE 0603160BR in FY 2008.

A. Mission Description and Budget Item Justification:

This project directly supports the National Military Strategy, including the dictates of the Nuclear Posture Review (NPR), and is directed by the Joint Chiefs of Staff (JCS) in the Joint Strategic Capabilities Plan (JSCP) Nuclear Annex. These programs are responsive to the oversight of the Nuclear Weapons Council and provide critical support to Combatant Commands (COCOMs), Services, JCS and Office of the Secretary of Defense.

As tasked by the DoD Nuclear Weapon System Safety Program, the surety programs provide COCOMs, Services and JCS with technical analyses, studies, research, and experimental data necessary to identify and quantify risks of plutonium dispersal and Loss of Assured Safety due to accidents, fires or natural causes during peacetime operations of the nation's nuclear weapon systems.

MIGHTY GUARDIAN Force-on-Force tests aid in satisfying requirements for the Air Force and Navy to provide absolute denial of access to nuclear weapons in all environments, from storage to transit. The results of the evaluations identify security vulnerabilities to weapons systems in various environments. The Air Force and Navy identify projects that require research and development to demonstrate, test, and evaluate systems prior to Service procurement to successfully plan and conduct force-on-force tests and associated engineering studies that accurately evaluate the adequacy of DoD, Service and COCOM nuclear security policies. Through physical security projects in support of COCOMs and Services, new and innovative technologies are developed for the protection of nuclear resources. Following proof-of-concept, these projects are transitioned to the Services for advanced development, procurement, and fielding.

As tasked, continue to operate as the Director of Defense Research and Engineering (DDR&E) Executive Agent for Annual Certification support related stewardship and sustainment activities. Provide support to senior program managers and decision makers concerning issues associated with maintaining and improving the aging stockpile; senior level committees that identify and develop programs to improve the reliability and sustainability of the nuclear stockpile; and an outreach program to educate DoD planners and managers about issues associated with sustaining the nuclear stockpile. In support of national requirements necessary to maintain a viable nuclear deterrent, the Defense Integration and Management of Nuclear Data Services (DIAMONDS) and the Nuclear Management Information System (NUMIS) provides automated tools that enable users to maintain, report, track and highlight trends affecting the nuclear weapon stockpile activities ensuring continued sustainability and viability of the nuclear stockpile.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602717BR Project BG – Nuclear Operations

Provide comprehensive combating WMD support to the DoD, as tasked by the Strategic Planning Guidance, the Contingency Planning Guidance, the Joint Strategic Capabilities Plan and other directing documents. Combating WMD encompasses all three pillars of the National Strategy – Nonproliferation, Counterproliferation, and Consequence Management and the eight mission areas – treaties and agreements, threat control and reduction, WMD interdiction, WMD elimination, offensive operations, active defense, passive defense, and consequence management.

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Project BG - Nuclear Operations	27.031	22.199	0.000	0.000

*Funding and activities realigned into Projects RA, RF and RI of PE 0602718BR and PE 0603160BR in FY 2008.

Performance Metrics:

- Successful completion of Mighty Guardian test, measured by completing all necessary planning and logistics steps, troops arriving when required, training completed, execution of the test, redeployment of forces, and publishing a final report within 90 days of completion.
- Development of a DoD annex to the National Response plan for a pandemic flu and subsequent national-level exercises to test plan.
- Development of DTRA Security Cooperation Plans for all regional Combatant Commands.
- Successful completion of Nuclear Management Information System (NUMIS) integration: measured by officially establishing Defense Integration and Management of Nuclear Data Services (DIAMONDS) as the stockpile database system of record.
- Successful completion of advanced DIAMONDS capabilities: measured by the deployment of an interactive Joint Nuclear Weapons Publication System (JNWPS) module, Decision Support Module, In-transit nuclear weapons tracking module, the Nuclear Inventory Management and Cataloging System, and Computer-Based Training module to all Air Force and Navy nuclear strategic and custodial units.

FY 2006 Accomplishments:

- Executed Mighty Guardian IX at Whiteman Air Force Base, MO to evaluate nuclear security policy as it applies to Weapons Storage Areas.
- Conducted hazard analysis research and development of nuclear weapon fire involving modeling simulations for the Air Force for use in the Integrated Weapons of Mass Destruction Tool Kit and Nuclear Capabilities Services.
- Provided analytical subject matter expert support to White House table top exercise for national response to a pandemic flu.
- Initiated development of DTRA-wide Security Cooperation Planning to support DoD nonproliferation, counterproliferation, and consequence management activities in selected nations within Combatant Commands' Areas of Responsibility as we are initiating Combating WMD R&D collaboration with specified nations.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602717BR Project BG – Nuclear Operations

- Assisted Supreme Headquarters Allied Powers, Europe (SHAPE) J6 in clarifying the Minimum Military Requirement for survivable, reliable communications to assure command, control and positive control of the nuclear mission and to assure that the International Military Staff understands the importance of the nuclear mission, thereby aiding in quick screening of the requirement by the Military Committee.
- Provided enhanced technical support and analysis to the Nuclear Weapons Council (NWC) and Nuclear Weapons Council Standing and Safety Committee (NWCSSC); supported development of the Nuclear Weapons Stockpile Memorandum and the Requirements and Planning Document and other annual high-level nuclear stockpile reports.
- Provided analysis to develop closure actions by the Nuclear Command and Control Issues Working Group (NC2IWG) to resolve long-standing deficiencies in Nuclear Command and Control Systems and in DoD meeting National Security Presidential Directive (NSPD)-28 requirements.
- Completed requirements collection, application design and development of Navy Defense Integration and Management of Nuclear Data Services (DIAMONDS) functionality.
- Began integration of Nuclear Management Information System (NUMIS) functionality and redesign of reporting system into DIAMONDS.

FY 2007 Plans:

- Conduct Mighty Guardian X Force-On-Force tests at Kirtland Air Force Base, NM.
- Continue hazard analysis research and development of nuclear weapon fire involvement modeling simulations for the Air Force for use in the Integrated Weapons of Mass Destruction Tool Kit (IWMDT) and Nuclear Capabilities Services (NUCS).
- Conduct fire prevention and suppression hardware development, and fact finding for the production of a Uniform Facility Criteria for DoD nuclear weapon capable storage and maintenance buildings.
- Continue to provide enhanced technical and operational support and analysis to NWC and NWCSSC and other high-level committees and senior decision-makers to transform the nuclear stockpile and infrastructure.
- Continue to provide operational and technical support to DoD and National Nuclear Security Administration through the DTRA Stockpile Associate Program and Air Force Institute of Technology sponsorship.
- Complete NUMIS integration, parallel test and establish DIAMONDS as system of record.
- Complete fielding of DIAMONDS at Navy sites by end of 1st quarter, FY 2007.
- Develop and deploy enhanced reporting system in DIAMONDS.
- Begin planning advanced/interactive Joint Nuclear Weapons Publications in DIAMONDS.
- Begin Decision Support Module development for DIAMONDS.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602717BR Project BG – Nuclear Operations

FY 2008 Plans:

- Not Applicable. See Projects RA, RF and RI of PE 0602718BR and PE 0603160BR.

FY 2009 Plans:

- Not Applicable. See Projects RA, RF and RI of PE 0602718BR and PE 0603160BR.

C. Other Program Funding Summary: Not Applicable.

D. Acquisition Strategy: Not Applicable.

E. Major Performers: Not Applicable.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602717BR Project BH – System Survivability

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project BH - System Survivability	79.293	84.278	0.000	0.000	0.000	0.000	0.000	0.000

* Funding and activities realigned into Projects RA, RF, RI of PE 0602718BR and PE 0603160BR in FY 2008.

A. Mission Description and Budget Item Justification:

This project constitutes the DoD resident science and technology expertise in nuclear and related survivability matters. It develops and demonstrates affordable strategies and hardening technologies for U.S. systems and forces; transfers the technical products to acquisition program offices; conducts component, subsystem, system and end-to-end performance tests and assessments for the Services and Combatant Commands; and provides support to Office of the Secretary of Defense on technical and policy matters that relate to the acquisition of survivable systems and strategic system sustainment. This project encompasses activities in four technology areas: Radiation Hardened Microelectronics, Simulation Technology, Assessment Technology and Radiation Detection Technologies.

The Radiation Hardened Microelectronics area responds to DoD space and missile system requirements for radiation-hardened microelectronics and photonics technology to support mission needs.

The Simulation Technology area provides the test capability to produce a radiation environment similar to that of a nuclear detonation. These nuclear weapon effects simulators are used to validate nuclear survivability requirements for DoD missile and space systems, conduct research in radiation effects, and validate computational models.

The Assessments Technology area focuses on ensuring that critical national systems (infrastructures, facilities, and command and control systems) can survive and operate in the event of a nuclear weapon detonation, and it provides nuclear and radiological modeling and simulation predictions for use by decision makers. It provides products and assistance to system program offices, agencies, the Services, combatant commanders and the National Command Authority. It develops tools that assess the vulnerabilities of mission essential infrastructure, nuclear missile interceptors, strategic radar systems, strategic command and control networks, computers, sensors, satellites, and other critical warfighting systems. This activity provides nuclear electromagnetic pulse technical expertise to assist DoD in ensuring the Nation’s Nuclear Command and Control System and other mission essential systems can operate in a nuclear electromagnetic pulse environment.

Detection Technologies develops or exploits radiation sensor, dosimetry and biological technologies and integrates them into real-time, forward-

deployed tools for characterizing radiologically hazardous environments. Its products protect the health and welfare of U.S. service personnel and allied forces by monitoring human survivability during operations on the radiological/WMD battlefield or in areas of suspected WMD development or release.

B. Accomplishments/Planned Program:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Project BH - System Survivability	79.293	84.278	0.000	0.000

*Funding and activities realigned into Projects RA, RF, RI of PE 0602718BR and PE 0603160BR in FY 2008.

Performance Metrics:

- Achieve Radiation Hardened (RH) 150 nanometer (nm) structured- Application Specific Integrated Circuit (ASIC), RH 150nm 16M Static Random Access Memory (SRAM) and Radiation Hardened by Design (RHBD) 90nm reconfigurable Field Programmable Gate Array (r-FPGA).
- Provide DoD the ability to predict the survival and mission impact of military critical systems exposed to nuclear weapon environments within acceptability criteria defined during the model accreditation process.
- Number of radiation detector prototypes completed.

FY 2006 Accomplishments:

- Initiated a focused effort to develop an Electron Paramagnetic Resonance (EPR) tool to measure lifetime radiation exposure from induced changes in tooth enamel non-destructively.
- Completed the second phase development of a radiation biodosimeter to assay individual radiation exposure after a radiological event.
- Initiated efforts to develop a portable mercuric iodide-based gamma-ray sensitive imaging instrument for portable scanning of suspicious containers by troops in the field. This effort was executed under a Congressional Adjustment titled: “Advanced Portable Mercuric Iodine Imaging Technology for Chemical, Biological, Radiological Nuclear and High Explosive Special Operations”.
- Demonstrated RH Electronic Design Automation (EDA) 150nm design capability for digital technology and RH 250nm Read Out Integrated Circuit (ROIC).
- Demonstrated a 100% increase in the generation of X-ray energy per unit area and a 150% improvement in output of compact primary energy storage technology. The improvement in warm X-ray energy gives customers better fidelity over a larger area to more accurately simulate nuclear radiation effects testing for solar cells, structures, cables and electronics. Customers interested in these improvements

include SMC and Sandia National Laboratories. The pulse power accomplishment with the Fast Marx prototype system demonstrates the potential for using this technology in next generation simulators. The Fast Marx approach offers the potential of achieving higher power X-ray systems at a reduced cost per energy unit output.

- Maintained DoD Nuclear Weapons Effects test capability in support of DoD and DOE research and test requirements.

FY 2007 Plans:

- Continue a focused effort to develop an Electron Paramagnetic Resonance (EPR) tool to non-destructively measure lifetime radiation exposure from teeth non-destructively.
- Execute a re-evaluation of biomarkers for expression of radiation exposure in Messenger Ribonucleic Acid (mRNA) and proteins before initiating a field test of the radiation biodosimeter utilizing voluntary human subjects, probably oncology patients, to evaluate the ability of the biodosimeter to accurately measure exposure.
- Demonstrate radiation hardened 150 nanometer (nm) bulk silicon and silicon-on insulator (SOI) technologies in the following integrated circuits: 16M Static Random Access Memory (SRAM), structured Application-Specific Integrated Circuit (ASIC), and 250Kgate Field Programmable Gate Array (FPGA). These devices will support systems that include Transformational Satellite Communications (TSAT), Space-Based Radar (SBR) and other National Command, Control, Communications, Computer, Intelligence, Surveillance and Reconnaissance (C4ISR) space assets.
- Demonstrate innovative radiation hardening methods for 90nm technology, radiation-hardened (RH) Electronic Design Automation (EDA) 150nm design capability for combined digital and analog/mixed-signal (A/M-S) technologies.
- Plan for disposition of DTRA Nuclear Weapons Effects (NWE) simulators to new DoD sponsor or to a fully-reimbursable business model in order to provide a test capability for DoD and Department of Energy (DOE) system developers.

FY 2008 Plans:

- Not Applicable. See Projects RA, RF and RI of PE 0602718BR and PE 0603160BR.

FY 2009 Plans:

- Not Applicable. See Projects RA, RF and RI of PE 0602718BR and PE 0603160BR.

C. Other Program Funding Summary: Not Applicable.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602717BR Project BH – System Survivability

D. Acquisition Strategy: Not Applicable.

E. Major Performers: Not Applicable.

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**R-1 ITEM NOMENCLATURE:** WMD Defeat Technologies; 0602718BR

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total 0602718BR Cost	**0.000**	**0.000**	**182.416**	**204.501**	**208.908**	**212.035**	**212.414**	**210.547**
Project RA - Systems Engineering and Innovation	0.000	0.000	22.000	26.472	25.689	24.628	24.631	24.587
Project RF - Detection Technology	0.000	0.000	26.299	32.498	35.707	38.387	41.392	37.607
Project RG - Advanced Energetics & Counter WMD Weapons	0.000	0.000	27.899	30.748	28.500	27.445	22.447	20.879
Project RI - Nuclear Survivability	0.000	0.000	10.416	10.424	10.430	5.606	5.606	5.606
Project RL - Nuclear & Radiological Effects	0.000	0.000	34.580	36.650	39.795	44.428	44.342	46.069
Project RM - WMD Battle Management	0.000	0.000	26.158	29.411	27.258	27.845	27.300	29.103
Project RR - Test Infrastructure	0.000	0.000	19.903	19.986	20.196	20.367	20.367	20.367
Project RU - Basic Research for WMD Knowledge Gaps	0.000	0.000	15.161	18.312	21.333	23.329	26.329	26.329

A. Mission Description and Budget Item Justification:

The mission of the DTRA is to safeguard America and its allies from WMD by reducing the present threat and preparing for the future threat. This mission directly reflects several national and DoD-level documents to include the National Security Strategy, Unified Command Plan (UCP), National Strategy to Combat WMD, Counterproliferation Interdiction, National Strategy for Combating Terrorism, National Military Strategy, Strategic Planning Guidance, Contingency Planning Guidance, National Military Strategy for Combating WMD, National Military Strategic Plan for the War on Terrorism, Joint Strategic Capabilities Plan (including the Nuclear Annex), Security Cooperation Guidance, Quadrennial Defense Review, Nuclear Posture Review, and Defense Transformation Planning Guidance (TPG). To achieve this mission, DTRA has identified principal objectives along with strategies and tasks to ensure the objectives are met. Three of these objectives are deter the use of WMD, reduce the present threat and prepare for the future threat. A focused, strong threat reduction technology base is critical to achieving these objectives and is closely tied with the operational support programs that make up its combat support mission. DTRA has taken the steps to develop this technology base and provide a foundation for transformational activities within the WMD arena as delineated in the TPG.

Project RA provides the research and development both for systems engineering and analysis support across all other Projects and innovative counterproliferation research.

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**R-1 ITEM NOMENCLATURE:** WMD Defeat Technologies; 0602718BR

Project RF develops technologies, systems and procedures to detect, identify, track, tag, locate, monitor and interdict strategic and improvised nuclear and radiological weapons, components, or materials in support of DoD requirements for combating terrorism, counter- and non-proliferation, homeland defense, and international initiatives and agreements.

Project RG develops advanced technologies and weapon concepts to validate their applicability as counter WMD weapon systems.

Project RI provides the capability for DoD nuclear forces and their associated control and support systems and facilities in wartime to avoid, repel, or withstand attack or other hostile action, to the extent that essential functions can continue or be resumed after the onset of hostile action.

Project RL develops nuclear and radiological assessment modeling tools to support military operational planning, weapon effects predictions, and strategic system design decisions.

Project RM provides (1) full scale testing of counter WMD weapon effects, sensor performance, and weapon delivery optimization, (2) weapon effects modeling, and (3) the DTRA Collaboration Center**.**

Project RR provides a unique national test bed capability for simulated WMD facility characterization, weapon-target interaction, and WMD facility defeat testing to respond to operational needs by developing and maintaining test beds used by the DoD, the Services, the Combatant Commanders and other federal agencies to evaluate the implications of WMD, conventional, and other special weapon use against U.S. military or civilian systems and targets.

Project RU provides strategic studies to support DoD and national strategies to combat WMD. These strategic studies address challenges in reducing the threat from WMD based on an assessment of the future national security environment.

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**R-1 ITEM NOMENCLATURE:** WMD Defeat Technologies; 0602718BR

B. Program Change Summary:

($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget	**0.000**	**0.000**	**0.000**	**0.000**
Current President's Budget	**0.000**	**0.000**	**182.416**	**204.501**
Total Adjustment	**0.000**	**0.000**	**182.416**	**204.501**
Congressional program reductions				
Congressional reductions				
Congressional increases				
Reprogramming				
Classified Program Transfer				
Other Program Adjustments			**182.416**	**204.501**
SBIR/STTR Transfer				

Change Summary Explanation:

- In FY 2008, this new Program Element (PE) is added to support improved organizational coordination and priorities. As part of this effort, PE 0602716BR and PE 0602717BR transform into a single new PE, titled WMD Defeat Technologies (PE 0602718BR). The existing PEs: WMD Defeat Technology (PE 0602716BR) and WMD Defense Technologies (PE 0602717BR) are realigned into PE 0602718BR and its new set of Projects: RA - Systems Engineering and Innovation, RF - Detection Technology, RG - Advanced Energetics & Counter WMD Weapons, RI - Nuclear Survivability, RL - Nuclear & Radiological Effects, RM - WMD Battle Management, RR - Test Infrastructure, RT - Target Assessment Technologies, RU – Basic Research for WMD Knowledge Gaps.
- The tables in PE 0602716BR and PE 0602717BR identify funding realignments by Project to PE 0602718BR in FY 2008 and FY 2009.

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

D. Acquisition Strategy: Not Applicable.

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**R-1 ITEM NOMENCLATURE:** WMD Defeat Technologies; 0602718BR

E. Performance Metrics: Program cost, schedule and performance are measured using a systematic approach with approved programs and methods. The results of these measurements are presented to DTRA management on a regular basis to determine program effectiveness and to provide new direction as needed to ensure the efficient use of resources. Program specific performance metrics are outlined within each project description.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602718BR Project RA – Systems Engineering and Innovation

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project RA - Systems Engineering and Innovation	0.000	0.000	22.000	26.472	25.689	24.628	24.631	24.587

***** Funding and activities realigned from Projects BB, BD, BE, BF, BG, and BH of PE 0602716BR and PE 0602717BR in FY 2008.

A. Mission Description and Budget Item Justification:

This project provides systems engineering and analysis support across all other Projects and innovative counterproliferation research. Provide Systems Engineering reachback WMD technical expertise interface to Warfighters and First Responders with DTRA's Combating WMD R&D subject matter experts. Provides R&D analysis necessary for the management of the R&D Enterprise, to include strategic planning, new initiatives in information management and business technology, cooperation, and ventures with new customers, and accomplishment of high-level, short notice special projects. Conduct counterproliferation R&D to investigate, identify, develop and transition innovative technologies from DTRA, other government agencies, industry, academia and international Science and Technology (S&T) partners into the respective DTRA R&D programs. Provide technical support to the DTRA London Office.

B. Accomplishments/Planned Program:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Project RA - Systems Engineering and Innovation	0.000	0.000	22.000	26.472

***** Funding and activities realigned from Projects BB, BD, BE, BF, BG, and BH of PE 0602716BR and PE 0602717BR in FY 2008.

Performance Metrics:

- Number of Requests for Information and run equivalents per year.
- Number of exercise and operations supported.
- Student days of training per year and decision support tools covered.
- New capabilities delivered and transitioned to O&M.

FY 2006 Accomplishments:

- Not Applicable. See Projects BB, BD, BE, BF, BG, and BH of PE 0602716BR and PE 0602717BR in FY 2008.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602718BR Project RA – Systems Engineering and Innovation

FY 2007 Plans:

- Not Applicable. See Projects BB, BD, BE, BF, BG, and BH of PE 0602716BR and PE 0602717BR in FY 2008.

FY 2008 Plans:

- Continue support for the R&D Enterprise in requirements and gap analysis to assist program managers identify, conduct, and deliver innovative science and technology to combat WMD.
- Systematic spiral development for material solutions to provide military capability early and continuous upgrades to fielded capabilities: Third deployment team certified – Technical Support Team; Full Operational Capability (FOC) Reachback medical and sensor integration expertise; FOC Vulnerability Assessment and Protection Option (VAPO), Initial Operating Capability (IOC) Joint Effects Model (JEM) Transition and Integrated WMD Toolset (IWMDT) Training; IOC Reachback first principle numerical modeling expertise; IOC Reachback Joint Effects Model support; Nonproliferation Studies – Tier 2.

FY 2009 Plans:

- Continue support for the R&D Enterprise in requirements and gap analysis to assist program managers identify, conduct, and deliver innovative science and technology to combat WMD.
- Systematic spiral development approach for material solutions to provide military capability early and continuous upgrades to fielded capabilities: Technical Support Teams – Nuclear Targeting Support; IOC Nuclear Capabilities Server (NUCS), FOC JEM Transition and IWMDT training; FOC Reachback first principle numerical modeling expertise; FOC Reachback Joint Effects Model support; Nonproliferation Studies – Tier 3.

C. Other Program Funding Summary:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
PE 0603160BR: Project RA - Systems Engineering and Innovation	0.000	0.000	9.126	3.687

D. Acquisition Strategy: Not Applicable.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602718BR Project RA – Systems Engineering and Innovation

E. Major Performers: Not Applicable.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602718BR Project RF –Detection Technology

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project RF - Detection Technology	0.000	0.000	26.299	32.498	35.707	38.387	41.392	37.607

***** Funding and activities realigned from Projects BG and BH of PE 0602716BR and PE 0602717BR in FY 2008.

A. Mission Description and Budget Item Justification:

Detection Technology develops technologies, systems and procedures to detect, identify, track, tag, locate, monitor and interdict strategic and improvised nuclear and radiological weapons, components, or materials in support of DoD requirements for combating terrorism, counter- and non-proliferation, homeland defense, and international initiatives and agreements. It develops the tools, technologies, communications, models, databases, and displays for forensic sampling and analysis of post-nuclear detonation debris fields to support the accurate identification and characterization of the weapons and the sources of the material employed. Efforts under this project also support international peacekeeping and nonproliferation objectives, on-site and aerial inspections and monitoring, on-site sampling and sample transport, and on- and off-site analysis to meet forensic, verification, monitoring and confidence-building requirements.

B. Accomplishments/Planned Program:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Project RF - Detection Technology	0.000	0.000	26.299	32.498

***** Funding and activities realigned from Projects BG and BH of PE 0602716BR and PE 0602717BR.

Performance Metrics:

- Completion and successful laboratory testing of the helium dimer Compton imager.
- Successful completion of the individual digital dosimeter project.
- Increased standoff detection distance for nuclear material detection.
- Improved attribution tool capabilities.

FY 2006 Accomplishments:

- Not Applicable. See Projects BG and BH of PE 0602716BR and PE 0602717BR.

FY 2007 Plans:

- Not Applicable. See Projects BG and BH of PE 0602716BR and PE 0602717BR.

FY 2008 Plans:

- Complete a focused effort to develop a testable prototype in situ Electron Paramagnetic Resonance (EPR) tool to measure lifetime radiation exposure from teeth non-destructively.
- Complete an effort to explore a Compton imager based on helium excitation with a laser based positional readout. Said arrangement may permit large standoff detection, identification, and characterization of a shielded source.
- Develop attribution tool to correlate modeling of non-State device designs with forensic data from ground samples.

FY 2009 Plans:

- Complete a second phase integration development of a low cost individual digital dosimeter to achieve operational goals. This phase will enhance integration and ensure that all systems are compatible with DoD battlefield communications standards.
- Complete an effort to detect nuclear materials from a large standoff distance without employing direct detection of neutrons or gammas (nuclear radiation) thus eliminating many of the drawbacks associated with nuclear radiation detection.
- Extend the attribution tool device and isotope modeling effort to include additional plausible non-State device designs.

C. Other Program Funding Summary:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
PE 0603160BR: Project RF – Detection Technology	0.000	0.000	39.305	41.213

D. Acquisition Strategy: Not Applicable.

E. Major Performers: Not Applicable.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602718BR Project RG – Advanced Energetics and Counter WMD Weapons

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project RG - Advanced Energetics & Counter WMD Weapons	0.000	0.000	27.899	30.748	28.500	27.445	22.447	20.879

* Funding and activities realigned from Projects BD and BF of PE 0602716BR in FY 2008.

A. Mission Description and Budget Item Justification:

This project provides applied research supporting defeat of WMD targets (including facilities with biological and chemical agents) while minimizing collateral damage and release of those agents when using air, land and sea assets brought to the theater by the warfighters. The effort also focuses on accelerating the development of advanced energetics technology (highly novel chemical and non-chemical energy systems), integrating disruptive payloads and technologies into existing and next generation weapon systems, developing a bunker buster capability that produces a threshold of five-fold over current bunker buster capability by FY 2009, ten-fold over current capability by FY 2013 and providing residual and transition support of these products. These objectives will be accomplished by a combination of developing and/or maturing technologies, weapon systems, weapon concepts and methods. Supported products are: (1) counter force weapons, fuzing technology, and robotics; (2) counter force agents and methods; and (3) disruptive payloads and delivery systems.

B. Accomplishments/Planned Program:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Project RG - Advanced Energetics & Counter WMD Weapons	0.000	0.000	27.899	30.748

* Funding and activities realigned from Projects BD and BF of PE 0602716BR in FY 2008.

Performance Metrics:

- Number of large scale tests completed.
- Percent increase of Counter WMD weapon performance compared to fielded weapons (e.g. Bomb, Live Unit (BLU)-109 and BLU-113).

FY 2006 Accomplishments:

- Not Applicable. See Projects BD and BF of PE 0602716BR.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602718BR Project RG – Advanced Energetics and Counter WMD Weapons

FY 2007 Plans:

- Not Applicable. See Projects BD and BF of PE 0602716BR.

FY 2008 Plans:

- Continue development of technologies for counterforce agent defeat, advanced payloads, counter WMD payload delivery systems, and advanced counter WMD weapons.
- Incorporate Massive Ordinance Penetrator (MOP), design improvements (Spiral 2) supporting five-fold increase of counter-WMD weapon effectiveness over fielded weapons.
- Demonstrate prototype of full-scale live simulant integrated diagnostic architecture supporting test of agent defeat weapons
- Conduct full-scale tunnel lethality tests on promising high-energy fills.
- Begin Precision Large Payload Delivery (PLPD) Spiral 1 design supporting ten-fold increase of counter-WMD weapon effectiveness over fielded weapons.
- Begin non-kinetic payload development for functional defeat of WMD targets.

FY 2009 Plans:

- Continue development of technologies for counterforce agent defeat, advanced payloads, counter WMD payload delivery systems, and advanced counter WMD weapons.
- Demonstrate MOP with seeker and alternative payload supporting five-fold increase of counter-WMD weapon effectiveness over fielded weapons.
- Complete integration/testing of Insensitive Munitions (IM) Agent Defeat (AD) Bomb, Live Unit (BLU)-109 payload.
- Complete Counter WMD Deny Payload component test.
- Continue full-scale tunnel lethality tests on promising high-energy fills.
- Conduct the Advanced Penetrator for Stealth Platforms sled test.

C. Other Program Funding Summary:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
PE 0603160BR: Project RG - Advanced Energetics & Counter WMD Weapons	0.000	0.000	20.470	20.550

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602718BR Project RG – Advanced Energetics and Counter WMD Weapons

D. Acquisition Strategy: Not Applicable.

E. Major Performers: Not Applicable.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602718BR Project RI - Nuclear Survivability

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project RI - Nuclear Survivability	0.000	0.000	10.416	10.424	10.430	5.606	5.606	5.606

***** Funding and activities realigned from Projects BD of PE 0602716BR and Projects BG and BH of PE 0602717BR in FY 2008.

A. Mission Description and Budget Item Justification:

The Nuclear Survivability Technology Project (NSTP) provides the capability for DoD nuclear forces and their associated control and support systems and facilities in wartime to avoid, repel, or withstand attack or other hostile action, to the extent that essential functions can continue or be resumed after the onset of hostile action. Emphasis is on ionizing radiation effects and Electromagnetic Pulse (EMP). The NSTP provides Radiation Hardened Microelectronics (RHM), Nuclear Weapons Effects test capability, and EMP hardening techniques and protocols.

The Simulation Technology area is being discontinued starting in FY 2007 with disposition of the West Coast Facility, San Leandro, CA. Historically it has provided the test capability to produce a radiation environment similar to that of a nuclear detonation. These nuclear weapon effects simulators are used to validate nuclear survivability requirements for DoD missile and space systems, conduct research in radiation effects, and validate computational models.

The Nuclear Technology Analysis Support provides support for the Joint Atomic Information Exchange Group (JAIEG) and the international Nuclear Weapons Effects Users' Group (NWEUG). The NWEUG establishes standards for nuclear weapons effects simulation codes and models as defined and prioritized by the nuclear community, and serves as a forum for sharing information on nuclear technologies, gaps and plans.

B. Accomplishments/Planned Program:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Project RI - Nuclear Survivability	0.000	0.000	10.416	10.424

***** Funding and activities realigned from Projects BD of PE 0602716BR and Projects BG and BH of PE 0602717BR in FY 2008.

Performance Metrics:

- Complete disposition of simulator hardware by September 30, 2010.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602718BR Project RI - Nuclear Survivability

- NWEUG: Coordinate and integrate nuclear weapon effects needs, capabilities and programs across the defense community and provide accreditation authority for all nuclear-related modeling and simulation.

FY 2006 Accomplishments:
- Not Applicable. See Projects BG and BH of PE 0602717BR.

FY 2007 Plans:
- Not Applicable. See Projects BG and BH of PE 0602717BR.

FY 2008 Plans:
- Complete disposition of DECADE and continue West Coast Facility (WCF) simulator hardware removal. WCF cleanup is expected to continue through FY 2010.
- Support Nuclear Weapons Effects Users' Group (NWEUG) conference at a U.S. location or in the United Kingdom.

FY 2009 Plans:
- Continue disposition of WCF equipment.
- Support NWEUG conference at a U.S. location or in the United Kingdom.

C. Other Program Funding Summary:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
PE 0603160BR: Project RI - Nuclear Survivability	0.000	0.000	18.848	18.867

D. Acquisition Strategy: Not Applicable.

E. Major Performers: Not Applicable.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602718BR Project RL - Nuclear & Radiological Effects

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project RL - Nuclear & Radiological Effects	0.000	0.000	34.580	36.650	39.795	44.428	44.342	46.069

***** Funding and activities realigned from Project BD of PE 0602716BR in FY 2008.

A. Mission Description and Budget Item Justification:

Nuclear and Radiological Effects develops nuclear and radiological assessment modeling tools to support military operational planning, weapon effects predictions, and strategic system design decisions; consolidate validated DTRA modeling tools into net-centric environment for integrated functionality; predict system response to nuclear and radiological weapons producing electromagnetic, thermal, blast, shock and radiation environments - key systems include Nuclear Command and Control System, Global Information Grid, missiles, structures, humans and environment; provide detailed adversary nuclear infrastructure characterization to enhance counterforce operations and hazard effects; conduct analyses in support of nuclear and radiological Science and Technology (S&T) and address the priority needs of combatant commands and DoD.

B. Accomplishments/Planned Program:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Project RL - Nuclear & Radiological Effects	0.000	0.000	34.580	36.650

***** Funding and activities realigned from Project BD of PE 0602716BR in FY 2008.

Performance Metrics:

- Complete transition of all hazard source terms to the Chem-Bio Defense Program’s Joint Effects Model (JEM) Block II enhancing our ability to predict hazards associated with weapons of mass destruction.
- Develop and integrate baseline database of 80% of current foreign nuclear reactors and enrichment facilities.
- Provide DoD the ability to predict the survival and mission impact of military critical systems exposed to nuclear weapon environments within acceptability criteria defined during the model accreditation process.
- Transition required capabilities to the Chem-bio Defense Program’s JEM and Joint Operational Effects Federation (JOEF), the Missile Defense Agency, US Space Command, and US Strategic Command's planning suite.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602718BR Project RL - Nuclear & Radiological Effects

FY 2006 Accomplishments:

- Not Applicable. See Project BD of PE 0602716BR.

FY 2007 Plans:

- Not Applicable. See Project BD of PE 0602716BR.

FY 2008 Plans:

- Enhance and develop models allowing the predictions and analysis of nuclear survivability for military communication satellites, the power grid as supporting the Global Information Grid, and the Army' Future Combat System.
- Continue to provide nuclear electromagnetic hardening and survivability support to the Joint Staff, Defense Information Systems Agency (DISA), and Missile Defense Agency (MDA). Focus areas anticipated include the Nuclear Command and Control System and Global Information Grid (GIG).
- Complete the high altitude nuclear weapon detonation data review in support of High Altitude Electromagnetic Pulse (HEMP) modeling.
- Conduct tests of liquid and powder Radiological Dispersal Devices (RDD) materials and complete RDD reference book.
- Develop and integrate baseline database of 80% of current foreign nuclear infrastructure facilities into targeting and hazard prediction codes.

FY 2009 Plans:

- Continue to provide nuclear electromagnetic hardening and survivability support to the Joint Staff, DISA, and MDA. Focus areas anticipated include the Nuclear Command and Control System and GIG.
- Complete development and integration of the EMP prediction model and low equivalent dose radiation cancer algorithms.
- Assess EMP effects on power grid components to determine impacts to the DoD's GIG.
- Initiate component fragility testing and develop fuel history code for Russian and Canadian designed nuclear power plants.

C. Other Program Funding Summary:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
PE 0605000BR: RL - Nuclear & Radiological Effects	0.000	0.000	15.394	15.946

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602718BR Project RL - Nuclear & Radiological Effects

D. Acquisition Strategy: Not Applicable.

E. Major Performers: Not Applicable.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602718BR Project RM - WMD Battle Management

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project RM - WMD Battle Management	0.000	0.000	26.158	29.411	27.258	27.845	27.300	29.103

***** Funding and activities realigned from Projects BD and BF of PE 0602716BR in FY 2008.

A. Mission Description and Budget Item Justification:

This project provides applied research supporting (1) full scale testing of counter WMD weapon effects, sensor performance, and weapon delivery optimization, (2) weapon effects modeling, and (3) the DTRA Collaboration Center (DCC)**.**

This project is maturing these capabilities to provide combatant commanders a variety of options to attack Hard & Deeply Buried Targets (HDBTs) as the proliferation and hardness of this class target increases. It develops new and enhanced capabilities at DTRA's WMD National Test Beds for integrating WMD defeat testing DoD-wide and supports tests and demonstrations of new capabilities for the counter WMD offensive operations mission area. It develops, tests, and demonstrates innovative and optimized HDBT Defeat weapon delivery methods, leading to the Services implementation of optimized conventional weapon Tactics, Techniques and Procedures (TTPs) into warfighter operations. The project conducts weapon effects phenomenology tests, analyzes data, and creates/modifies software to more accurately model cratering effects, fragmentation (both primary & secondary), equipment/container fragility, structural response, quasi-static dispersion & damage, and penetration.

The DCC Capability is an Agency-wide capability that assures the timely acquisition, synchronization, correlation and delivery of Chemical, Biological, Radiological, Nuclear and Explosive (CBRNE) consequence management and mitigation data necessary in combating WMD. The DCC will be the "key enabler" allowing the Agency to transform successfully into an interoperable DoD Science and Technology (S&T) environment. Through the use of the DCC, DTRA will be able to shape and improve military situational awareness independent of time or location, effectively shorten decision cycles in a CBRNE event, and extend DTRA's knowledge base externally through collaborative technologies.

B. Accomplishments/Planned Program:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Project RM - WMD Battle Management	0.000	0.000	26.158	29.411

***** Funding and activities realigned from Projects BD and BF of PE 0602716BR in FY 2008.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602718BR Project RM - WMD Battle Management

Performance Metrics:
- Number of tests completed.
- Percent increase of model confidence.

FY 2006 Accomplishments:
- Not Applicable. See Projects BD and BF of PE 0602716BR.

FY 2007 Plans:
- Not Applicable. See Projects BD and BF of PE 0602716BR.

FY 2008 Plans:
- Conduct tunnel facility defeat demonstration using optimized attack with existing inventory weapons on Capitol Peak Tunnel facilities.
- Enhance modeling of Chem/Bio effects on human entities and integrate DTRA models with next-generation U.S. Army Chemical, Biological, Radiological and Nuclear simulation federates in experimentation.
- Provide CBRN defense solutions for Joint Concept Development & Experimentation (JCD&E) experiment focused on examining potential solutions to joint/combined urban operations challenges and multi-national collaboration to include Joint Forces Command (JFCOM) Multi-National Experiment.
- Integrate Combined Enterprise Regional Information Exchange System (CENTRIXS) Coalition Capabilities to increase effectiveness of the DTRA Collaboration Center.
- Continue research and development supporting counter WMD weapons effect modeling & testing and the DTRA Collaboration Center.
- Complete construction of the multi-story testbed with basement bunker that will support weapon effects testing and the development of Air Force tactics, techniques, and procedures.
- Conduct defeat demonstration of multi-story building with basement bunker using available air-delivered weapons and Air Force tactics, techniques, and procedures.

FY 2009 Plans:
- Complete Quasi Static Pressure Dispersion Damage tests to improve understanding of weapon effects phenomenology and enhance WMD planning tools.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602718BR Project RM - WMD Battle Management

- Continue research and development supporting counter WMD weapons effect modeling & testing and the DTRA Collaboration Center.
- Conduct Communications, Command, Control and Intelligence (C3I) tunnel facility defeat demonstration using optimized attack with existing inventory weapons on Hard Target Defeat Facility 2 tunnel (Nevada Test Site).
- Implement multiple security levels across DTRA information domains to increase effectiveness of the DTRA Collaboration Center.
- Formulate Combined Simulation Federation to increase effectiveness of the DTRA Collaboration Center.
- Deliver an improved IMEA model (Common Layer Cratering Library) for predicting damage to hard and deeply buried targets due to cratering.

C. Other Program Funding Summary:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
PE 0603160BR: Project RM - WMD Battle Management	0.000	0.000	57.911	55.621

D. Acquisition Strategy: Not Applicable.

E. Major Performers: Not Applicable.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602718BR Project RR - Test Infrastructure

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project RR - Test Infrastructure	0.000	0.000	19.903	19.986	20.196	20.367	20.367	20.367

***** Funding and activities realigned from Project BE of PE 0602716BR in FY 2008.

A. Mission Description and Budget Item Justification:

This project provides a unique national test bed capability for simulated WMD facility characterization, weapon-target interaction, and WMD facility defeat testing to respond to operational needs by developing and maintaining test beds used by the DoD, the Services, the Combatant Commanders and other federal agencies to evaluate the implications of WMD, conventional, and other special weapon use against U.S. military or civilian systems and targets. It leverages fifty years of testing expertise to investigate weapons effects and target response across the spectrum of hostile environments that could be created by proliferant nations or terrorist organizations with access to advanced conventional weapons or WMD (nuclear, biological and chemical). The project maintains testing infrastructure to support the testing requirements of warfighters, other government agencies, and friendly foreign countries on a cost reimbursable basis. Creates testing strategies and a WMD test Bed infrastructure focusing on the structural response of buildings and Hard & Deeply Buried Targets that house nuclear, biological, and chemical facilities. It provides support for full and sub-scale tests that focus on weapon-target interaction with fixed soft and hardened facilities to include aboveground facilities, cut-and-cover facilities and deep underground tunnels. This capability does not exist anywhere else within DoD and supports the counterproliferation pillar of the National Strategy to Combat WMD.

B. Accomplishments/Planned Program:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Project RR - Test Infrastructure	0.000	0.000	19.903	19.986

***** Funding and activities realigned from Project BE of PE 0602716BR in FY 2008.

Performance Metrics:

- Number of tests executed safely, i.e., no loss of life or limb, no unintentional significant damage of property.
- Number of tests that go through the milestone review process.
- Number of tests that undergo environmental assessment consistent with existing Environmental Impact Statements.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602718BR Project RR - Test Infrastructure

FY 2006 Accomplishments:
- Not Applicable. See Project BE of PE 0602716BR.

FY 2007 Plans:
- Not Applicable. See Project BE of PE 0602716BR.

FY 2008 Plans:
- Construct diagnostics support building at White Sands Missile Range.
- Continue research and development activities for test and technology support, infrastructure development and improvement, and environmental restoration.
- Remediate Giant Reusable Air Blast Simulator site at Kirtland Air Force Base.
- Initiate construction of an engineering building at Dugway Proving Ground.
- Complete Cultural Resource Assessment and seven of seven site studies (Nevada Test Site).
- Large Test Structure-1&2 Demolition and Joint Air Surface Standoff Missile (JASSM) Test structure demolition.
- Magnetic Flyer (Magflyer) and Advanced Research Electromagnetic Simulator (ARES) remediation (Kirtland AFB).

FY 2009 Plans:
- Develop plans for returning test sites to host agencies.
- Continue research and development activities for test and technology support, infrastructure development and improvement, and environmental restoration.
- Complete construction of an engineering building at Dugway Proving Ground.
- Complete Federal Facilities Agreement and Consent Order (FFACO) compliance.

C. Other Program Funding Summary: Not Applicable.

D. Acquisition Strategy: Not Applicable.

E. Major Performers: Not Applicable.

Exhibit R-2a, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	**PROJECT NAME AND NUMBER:** 0602718BR Project RU – Basic Research for WMD Knowledge Gaps

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project RU - Basic Research for WMD Knowledge Gaps	0.000	0.000	15.161	18.312	21.333	23.329	26.329	26.329

***** Funding and activities realigned from Project BD of PE 0602716BR in FY 2008.

A. Mission Description and Budget Item Justification:

This project conducts strategic studies to support the DoD and national strategies to combat WMD. The strategic studies address challenges in reducing the threat from WMD based on an assessment of the future national security environment. They also develop and maintain an evolving analytical vision of necessary and sufficient capabilities to protect United States and allied forces and citizens from nuclear, biological, and chemical attack and identify gaps in these capabilities and initiate programs to fill them.

B. Accomplishments/Planned Program:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Project RU - Basic Research for WMD Knowledge Gaps	0.000	0.000	15.161	18.312

* Funding and activities realigned from Project BD of PE 0602716BR in FY 2008.

Performance Metrics:

- Each study/project will commence within 3 months of customer request and results delivered within 3 months of completion.

FY 2006 Accomplishments:

- Not Applicable. See Project BD of PE 0602716BR.

FY 2007 Plans:

- Not Applicable. See Project BD of PE 0602716BR.

FY 2008 Plans:

- Identify and transition all suitable investigatory Science and Technology (S&T) R&D projects to appropriate long-term sponsors for concept/design validation, prototype fabrication, testing and fielding.

- Continue and expand the investigation of promising candidate advanced applied scientific and technical R&D projects.
- Continue the sponsorship and education of the "Next Generation" of mission-critical scientific, technical and engineering expertise.
- Continue examination of emerging technologies and underlying sciences applicable to combating weapons of mass destruction, with increased emphasis on avoiding technical surprise.

FY 2009 Plans:

- Identify and transition all suitable investigatory Science and Technology (S&T) R&D projects to appropriate long-term sponsors for concept/design validation, prototype fabrication, testing and fielding.
- Continue and expand the investigation of promising candidate advanced applied scientific and technical R&D projects.
- Continue the sponsorship and education of the "Next Generation" of mission-critical scientific, technical and engineering expertise.
- Continue examination of emerging technologies and underlying sciences applicable to combating weapons of mass destruction, with increased emphasis on avoiding technical surprise.

C. Other Program Funding Summary:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
PE 0601000BR: RU - Basic Research for WMD Knowledge Gaps	0.000	0.000	5.000	5.000

D. Acquisition Strategy: Not Applicable.

E. Major Performers: Not Applicable.

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2007
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 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total 0603160BR Cost	**105.361**	**116.630**	**213.240**	**211.555**	**216.641**	**211.934**	**217.807**	**225.275**
Project BB - Small Business Innovative Research*	0.000	0.689	0.000	0.000	0.000	0.000	0.000	0.000
Project BI - Detection Technology	19.088	19.824	0.000	0.000	0.000	0.000	0.000	0.000
Project BJ - SOF Counterproliferation Support	20.515	18.217	0.000	0.000	0.000	0.000	0.000	0.000
Project BK - Counterforce	65.758	77.900	0.000	0.000	0.000	0.000	0.000	0.000
Project RA - Systems Engineering and Innovation	0.000	0.000	9.126	3.687	4.106	4.154	4.154	4.154
Project RE - Counter-Terrorism Technologies	0.000	0.000	44.109	45.424	45.399	44.367	44.367	44.367
Project RF - Detection Technology	0.000	0.000	39.305	41.213	43.783	47.589	49.186	46.967
Project RG - Adcanced Energetics & Counter WMD Weapons	0.000	0.000	20.470	20.550	19.670	24.706	29.321	37.997
Project RI - Nuclear Survivability	0.000	0.000	18.848	18.867	18.867	18.867	18.868	18.869
Project RM - WMD Battle Management	0.000	0.000	57.911	55.621	56.668	42.200	41.500	42.500
Project RT - Target Assessment Technologies	0.000	0.000	23.471	26.193	28.148	30.051	30.411	30.421

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

A. Mission Description and Budget Item Justification:

This program element reduces WMD proliferation and enhances WMD defeat capabilities through advanced technology development. To accomplish this objective, Small Business Innovative Research and four project areas were developed: BI - Detection Technology, BJ - Special Operation Forces Counterproliferation Support, BK - Counterforce, and Unconventional Nuclear Warfare Defense. In an effort to better align its investment portfolio with requirements and initiatives on combating Weapons of Mass Destruction, these projects are revised, starting in FY 2008, to the following projects: RA - Systems Engineering and Innovation, RE - Counter-Terrorism Technologies, RF - Detection Technology, RG - Advanced Energetics and Counter WMD Weapons, RI - Nuclear Survivability, RM - WMD Battle Management and RT - Target Assessment Technologies. This revision supports technology requirements defined in the Joint Functional Concepts (Chairman, Joint Chiefs of Staff Instruction 3170.01) and the Quadrennial Defense Review Transformational Goals. The missions and plans of these projects are described below in the R-2a Budget Exhibits.

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3	**R-1 ITEM NOMENCLATURE:** Proliferation Prevention and Defeat; 0603160BR

B. Program Change Summary:

($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget	**107.879**	**104.582**	**109.371**	**109.906**
Current President's Budget	**105.361**	**116.630**	**213.240**	**211.555**
Total Adjustment	**-2.518**	**12.048**	**103.869**	**101.649**
Congressional program reductions				
Congressional reductions		**-0.442**		
Congressional increases		**12.490**		
Reprogramming	**-1.500**			
Classified Program Transfer				
Other Program Adjustments			**103.869**	**101.649**
SBIR/STTR Transfer	**-1.018**			

Change Summary Explanation:

- The increase in overall funding for Proliferation Prevention and Defeat in FY 2008 and beyond reflects the increased emphasis in providing demonstrated technologies and solutions to warfighters for combating the WMD threat.
- In FY 2008, $23.471M transfers from PE 0602716BR and $80.398M from PE 0602717BR.
- In FY 2009, $26.193M transfers from PE 0602716BR and $75.456M from PE 0602717BR.
- The following table provides the crosswalk for the realignment of the project funds within this program element.

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3	**R-1 ITEM NOMENCLATURE:** Proliferation Prevention and Defeat; 0603160BR

PE 0603160BR FY 2008 Cost ($ in Millions)									
Old Projects		**New Projects**							
Project	Total	RA	RE	RF	RG	RI	RM	RT	Total
BB	0.731	0.731	0.000	0.000	0.000	0.000	0.000	0.000	**0.731**
BI	7.678	0.495	0.000	7.183	0.000	0.000	0.000	0.000	**7.678**
BJ	20.532	0.000	20.532	0.000	0.000	0.000	0.000	0.000	**20.532**
BK	80.430	7.900	23.577	0.000	20.470	0.000	28.483	0.000	**80.430**
Total	109.371	9.126	44.109	7.183	20.470	0.000	28.483	0.000	**109.371**
From PE 0602716BR		0.000	0.000	0.000	0.000	0.000	0.000	23.471	**23.471**
From PE 0602717BR		0.000	0.000	32.122	0.000	18.848	29.428	0.000	**80.398**
Grand Total		**9.126**	**44.109**	**39.305**	**20.470**	**18.848**	**57.911**	**23.471**	**213.240**

PE 0603160BR FY 2009 Cost ($ in Millions)									
Old Projects		**New Projects**							
Project	Total	RA	RE	RF	RG	RI	RM	RT	Total
BB	0.751	0.751	0.000	0.000	0.000	0.000	0.000	0.000	**0.751**
BI	6.128	0.768	0.000	5.360	0.000	0.000	0.000	0.000	**6.128**
BJ	20.916	0.000	20.916	0.000	0.000	0.000	0.000	0.000	**20.916**
BK	82.111	2.168	24.508	0.000	20.550	0.000	34.885	0.000	**82.111**
Total	109.906	3.687	45.424	5.360	20.550	0.000	34.885	0.000	**109.906**
From PE 0602716BR		0.000	0.000	0.000	0.000	0.000	0.000	26.193	**26.193**
From PE 0602717BR		0.000	0.000	35.853	0.000	18.867	20.736	0.000	**75.456**
Grand Total		**3.687**	**45.424**	**41.213**	**20.550**	**18.867**	**55.621**	**26.193**	**211.555**

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3	**R-1 ITEM NOMENCLATURE:** Proliferation Prevention and Defeat; 0603160BR

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

D. Acquisition Strategy: Not Applicable.

E. Performance Metrics: Program cost, schedule and performance are measured using a systematic approach with approved programs and methods. The results of these measurements are presented to DTRA management on a regular basis to determine program effectiveness and to provide new direction as needed to ensure the efficient use of resources. Program specific performance metrics are outlined within each project description.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3	**PROJECT NAME and NUMBER:** 0603160BR Project BB – Small Business Innovative Research

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project BB - Small Business Innovative Research*	0.000	0.689	0.000	0.000	0.000	0.000	0.000	0.000

*In year of execution, funding executed under PE 0605502BR "Small Business Innovative Research (SBIR)".

A. Mission Description and Budget Item Justification:

This project provides the means for stimulating technological innovation in the private sector, strengthens the role of small business in meeting DoD R&D needs; fosters and encourages participation of minority and disadvantaged businesses in technological innovation; and increases the commercial application of DoD supported R&D results. These efforts are responsive to Public Law 106-554.

B. Accomplishments/Planned Program:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Project BB - Small Business Innovative Research*	0.000	0.689	0.000	0.000

*In year of execution, funding executed under PE 0605502BR "Small Business Innovative Research (SBIR)". SBIR funding will be identified in the change section as a decrease to the total level of funds and transferred to PE 0605502BR for execution.

Performance Metrics:

- Number of phase I awards supporting innovative technology development.
- Number of phase II and III awards leading to technology transition.

FY 2006 Accomplishments:

- Not Applicable. See Project BB of PE 0605502BR.

FY 2007 Plans:

- Fund 43.0 percent of DTRA SBIR investment including:
  - Up to ten Phase I SBIR contracts to perform feasibility studies on FY 2007 topics.
  - Up to two Phase II SBIR contracts to perform full research and development on promising FY 2006 Phase I efforts.
  - Share of incremental funding of FY 2006 Phase I and FY 2005 Phase II SBIR contract awards.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3	**PROJECT NAME AND NUMBER:** 0603160BR Project BB – Small Business Innovative Research

FY 2008 Plans:

- Not Applicable. See Project RA of PE 0605502BR.

FY 2009 Plans:

- Not Applicable. See Project RA of PE 0605502BR.

C. Other Program Funding Summary: Not Applicable.

D. Acquisition Strategy: Not Applicable.

E. Major Performers: Not Applicable.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3	**PROJECT NAME AND NUMBER:** 0603160BR Project BI – Detection Technology

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project BI - Detection Technology	19.088	19.824	0.000	0.000	0.000	0.000	0.000	0.000

***** Funding and activities realigned to Projects RA and RF of PE 0603160BR in FY 2008.
Note: FY 2006 resources reflect Congressional Adjustment of $13.38 M.

A. Mission Description and Budget Item Justification:

This project develops technologies to achieve national defense counter- and non proliferation, as well as arms control objectives. Major activities include:

Develop technologies to monitor, detect, identify and locate strategic, conventional and improvised weapons, components, or materials. In addition, provide improved detection systems for radiological or high explosive materials under cooperative and non-cooperative conditions providing increased range of detection, lower costs, lower weight and better resolution, higher sensitivity, and greater discrimination to minimize false positive and false negative readings.

Develop and test enhanced operational systems supporting DoD requirements employing advances in solid state nuclear detectors, processing electronics, analysis software, and identification technology, and integrated nuclear/biological/chemical sensor technology.

Develop procedures and equipment that will enable the United States government to effectively monitor compliance with current and projected international agreements in the most non-intrusive and cost-effective manner.

Develop technology to provide information collection, processing and dissemination capabilities to meet notification and reporting requirements.
Perform technology assessments and provide technical input to support development of innovative agreements addressing transparency, cooperation, and confidence-building issues in new topical areas and/or specific geographical regions.

B. Accomplishments/Planned Program:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Project BI - Detection Technology	19.088	19.824	0.000	0.000

***** Funding and activities realigned to Projects RA and RF of PE 0603160BR in FY 2008.

Performance Metrics:

- Completion and successful laboratory testing of the helium dimer Compton imager.

- Test/demonstrate Secret/Restricted Data (S/RD) and Secret Internet Protocol Router Network (SIPRNet) communications capabilities from field units; deliver audit report for end-to-end technology demonstration of National Technical Nuclear Forensics for Attribution (NTNF) system.
- Successfully develop data integration capability with future interagency comprehensive, all domain WMD detection architecture.
- Deploy upgraded technology and Concept of Operations for sample collection, Radiochemistry (RADCHEM) analysis, Secret/Restricted Data (S/RD) communications, and data analysis; develop plan for faster diagnostics based on technology demonstrations; formulate program direction for advanced forensic sampling concepts.
- New capabilities delivered and transitioned to O&M.

FY 2006 Accomplishments:

- Continued developing detection systems exploiting advances in solid state nuclear detectors, processing electronics, analysis software, identification technology, and integrated nuclear/biological/chemical sensor technology, eliminating the logistical burden of cryogenic cooling as well as bulky gas detectors. Completed laboratory prototype solid state neutron detectors and novel scintillation detectors.
- Initiated a Joint/Advanced Concept Technology Demonstration effort to develop and demonstrate a modular nuclear and radiation detection system capable of being mounted on multiple platforms (vehicular, aerial, marine, and handheld), deployed in both overt and covert situations, and seamlessly integrated into a sensor network to provide battlespace awareness for the theater commander. This included a $6.800M Congressional Adjustment in support of Fiber Radiation Detector and Guardian development.
- Delivered 5 new Arms Control Enterprise System Modules: Unit Transactions Module (UTM), Open Skies Treaty, United Nations Transparency in Armaments (UNTIA), Global Exchange of Military Information (GEMI) and Wassenaar Arrangement.

FY 2007 Plans:

- Continue development of a multi-layer, multi-crystal (3 x 3 x 2) prototype pixellated gamma ray Compton imaging spectrometer and of novel scintillating crystal detectors with enhanced energy resolution.
- Complete a Joint/Advanced Concept Technology Demonstration effort demonstrating a modular nuclear radiation detection system capable of being mounted on multiple platforms (vehicular, aerial, marine, and handheld), deployed in both overt and covert situations and seamlessly integrated into a sensor network to provide battlespace awareness for the theater commander.
- Deliver new Arms Control Enterprise System Module: Inspection Planning Module (IPM).

FY 2008 Plans:

- Not Applicable. See Projects RA and RF of PE 0603160BR.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3	**PROJECT NAME AND NUMBER:** 0603160BR Project BI – Detection Technology

FY 2009 Plans:

- Not Applicable. See Projects RA and RF of PE 0603160BR.

C. Other Program Funding Summary: Not Applicable.

D. Acquisition Strategy: Not Applicable.

E. Major Performers: Not Applicable.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3	**PROJECT NAME AND NUMBER:** 0603160BR Project BJ – SOF Counterproliferation Support

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project BJ - SOF Counterproliferation Support	20.515	18.217	0.000	0.000	0.000	0.000	0.000	0.000

* Funding and activities realigned to Project RE of PE 0603160BR in FY 2008.

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. This mission within Force Application has been identified as a critical national priority assigned to SOF. The goal of this project is to provide management oversight and technical assistance for SOF-unique technologies, and develop enhanced SOF capabilities.

Demonstrate 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 Chairman, Joint Chiefs of Staff Manual (CJCSM) 5225-01 dated 1 March 2001 (Classification of Counterproliferation (CP)).

Develop a full spectrum of complementary capabilities for Counter Terrorism (CT) and CP that will provide the ability to rapidly detect and destroy WMD in various backgrounds, concentrations and forms to the Department of Defense, Combatant Commanders and Other Government Agencies. This effort also analyzes the current knowledge base for detection and decontamination of Chemical, Biological, Radiological and Nuclear 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 Chairman, CJCSM 5225-01 dated 1 March 2001 (Classification of CP).

B. Accomplishments/Planned Program:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Project BJ - SOF Counterproliferation Support	20.515	18.217	0.000	0.000

* Funding and activities realigned to Project RE of PE 0603160BR in FY 2008.

Performance Metrics:

- Number of technologies delivered that increase the potential mission success and reduce the number of current gaps in Special Operations Forces (SOF) capabilities to counter WMD when conducting Global War on Terrorism operations.

FY 2006 Accomplishments:

- Continued to provide support to the development of SOF–unique technologies, tactics and procedures aimed at enhancing SOF capabilities.
- Continued to provide the full spectrum of new technologies for SOF to counter WMD proliferation enabling the war-fighter to improve their ability to detect, disable and neutralize threat WMD and associated facilities.

FY 2007 Plans:

- Initiate terrorist pathway counter proliferation Advanced Technology Demonstration (ATD) (Specific technologies are classified Alternative Compensative Control Measures).

FY 2008 Plans:

- Not Applicable. See Project RE of PE 0603160BR.

FY 2009 Plans:

- Not Applicable. See Project RE of PE 0603160BR.

C. Other Program Funding Summary: Not Applicable.

D. Acquisition Strategy: Not Applicable.

E. Major Performers: Not Applicable.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3	**PROJECT NAME AND NUMBER:** 0603160BR Project BK - Counterforce

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project BK - Counterforce	65.758	77.900	0.000	0.000	0.000	0.000	0.000	0.000

* Funding and activities realigned to Projects RA, RE, RG and RM of PE 0603160BR in FY 2008.

A. Mission Description and Budget Item Justification:

This project develops and demonstrates technologies to strengthen joint and combined warfighting capabilities useful in the Global War on Terrorism and those that demonstrate integrated attack technologies used against Hard & Deeply Buried Targets that house WMD. The objectives of this program are 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 chemical, biological, radiological, nuclear and high explosive (CBRNE) weapons. The U.S. requires the capability to attack and neutralize CBRNE research, production, storage, operations and support, and command and control facilities while mitigating collateral effects from expulsion and release of CBRNE agents. Potential targets include mobile and fixed, above ground and underground, hardened and unhardened facilities, as well as related Command, Control, Communications and Intelligence (C3I) facilities, and trans-shipment 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 stand-off technologies for WMD combat assessment, integration of global strike technologies, and target-attack planning tools that optimize weapon and sensor employment.

This project emphasizes technology demonstrations to include Advanced Technology Demonstrations (ATDs) and Advanced Concept Technology Demonstrations (ACTDs). The project is divided into four mission areas, WMD Counterforce Applications, CBRNE Counterproliferation Support, Global Strike Integration Technologies, and Hard Target Defeat.

B. Accomplishments/Planned Program:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Project BK - Counterforce	65.758	77.900	0.000	0.000

* Funding and activities realigned to Projects RA, RE, RG and RM of PE 0603160BR in FY 2008.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3	**PROJECT NAME AND NUMBER:** 0603160BR Project BK - Counterforce

Performance Metrics:

- Percent increase of Counter WMD weapon performance compared to fielded weapons (e.g. Bomb, Live Unit (BLU)-109 and BLU-113).

FY 2006 Accomplishments:

- Completed analysis of the suitability of alternative guidance kits for use with the Bomb, Live Unit BLU-121/B warhead.
- Collaborated with Air Force Special Operations Command (AFSOC) and Air Force Unmanned Aerial Vehicle (UAV) Battle Lab to develop the SPECTRE-FINDER program plan and initiate activities to deliver capability to acquire off-board, below the weather imagery for pre-strike target identification and post-strike battle damage assessment.
- Conducted a series of full scale static detonations against moving, Medium-Range Ballistic Missile (MRBM) WMD targets to evaluate the performance of Cobra and Predator-launched Hellfire missile systems in defeating the target while minimizing collateral effects.
- Conducted Foreign Comparative Test (FCT) program to evaluate the German Programmable Intelligent Multi-Purpose Fuze (PIMPF) ability to detect and count voids in prosecuting multi layered targets.
- Demonstrated seven technologies, as part of a Chemical Advanced Technology Demonstration (ATD), that enabled Special Operations Forces (SOF) to detect, disable, neutralize, and render safe WMD capable Improvised Explosive Devices (IEDs) and their associated facilities.
- Initiated the following new R&D projects in support of USSOCOM requirements under the SOF Venture program: Integrated Micro-Climatization System (IMCS) project, GPS-Denied Navigation and Mapping (GPS DNM) project, Non-intrusive Detection (PINS-3) project, Gellants project, Biological Detection and Identification project, and Standoff Chemical Detection project.
- Completed construction and outfitting of a tunnel testbed used for a large-scale ground-shock experiment on a tunnel facility.
- Initiated development of WMD plume volume measurement capability.
- Began validation of variable terminal effects concepts.
- Conducted limited experiment proof-of-principle flight test of Battle Damage Reporting System using a Tomahawk Land Attack Missile, Dispenser Variant (TLAM-D).
- Completed limited experiment proof-of-principle flight test of weapon-borne sensors using a chemical sensor and an aerial version of unattended ground sensor in a Wind Corrected Munitions Dispenser (WCMD) Tactical Munitions Dispenser (TMD).

FY 2007 Plans:

- Develop and integrate an infrared, video payload into the FINDER UAV to address AFSOC requirement for off-board, below the weather imagery for pre-strike target identification and post-strike battle damage assessment.
- Conduct mid scale testing of taggant technologies to enable integration of taggant into a counter-WMD strike weapon system.

- Conduct integration and fit-checks for bio mobile laboratory, ground command, control, and communications station, and Combat Assessment Unmanned Aerial Vehicle components of the Biological Combat Assessment System (BCAS).
- Conduct large scale ground shock experiment on a tunnel target test bed to validate ground shock and tunnel response models.
- Develop requirements for DoD Tier II and III unique equipment to enhance first responders' ability to safely detect, diagnose, and defeat Radiological Dispersal and Chemical/Biological Devices through table top and field exercises.
- Deliver SOF-unique technologies under the SOF Venture program. Projects planned for completion: Standoff Chemical Detection, Phase I of Integrated Micro-Climatization System (IMCS).
- Initiate development of a spray-on protective coating under SOF Venture biological/chemical defense.
- Conduct demonstration of alternate guidance kits with the thermobaric bomb live unit (BLU-121/B) warhead.
- Make site selection for Reusable Full-Scale Simulant Testbed.

FY 2008 Plans:

- Not Applicable. See Projects RA, RE, RG and RM of PE 0603160BR.

FY 2009 Plans:

- Not Applicable. See Projects RA, RE, RG and RM of PE 0603160BR.

C. Other Program Funding Summary: Not Applicable.

D. Acquisition Strategy: Not Applicable.

E. Major Performer: Not Applicable.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3	**PROJECT NAME AND NUMBER:** 0603160BR Project RA – Systems Engineering and Innovation

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project RA - Systems Engineering and Innovation	0.000	0.000	9.126	3.687	4.106	4.154	4.154	4.154

* Funding and activities realigned from Projects BB, BI and BK of PE 0603160BR in FY 2008.

A. Mission Description and Budget Item Justification:

This project provides the research and development operations analysis support to the Agency in understanding, analysis, integration and execution of DTRA operational missions. This includes analysis of National, DoD and other Federal agencies' strategic guidance and plans in the Combating WMD, Combating Terrorism (CT) and Homeland Defense (HD) arenas through analytical political-military and technical studies, workshops and conferences. It also provides DTRA on-site support to North Atlantic Treaty Organization (NATO) and Supreme Headquarters Allied Powers, Europe (SHAPE) with a current primary focus on support to US European Command, NATO, and SHAPE in combating WMD and maintaining the NATO nuclear deterrent.

B. Accomplishments/Planned Program:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Project RA - Systems Engineering and Innovation	0.000	0.000	9.126	3.687

*Funding and activities realigned from Projects BB, BI and BK of PE 0603160BR in FY 2008.

Performance Metrics:

- Development of a DoD annex to the National Response plan for a pandemic flu and subsequent national-level exercises to test plan.
- Development of DTRA Security Cooperation Plans for all regional Combatant Commands.
- Development of a DTRA gap analysis of Combating WMD mission vice HD and CT mission areas to provide way ahead for DTRA operational and R&D planning.
- Robust lessons learned process that incorporates new, workable operational and technical solutions into DoD and with allies.
- Incorporation of at least 3 new technologies by FY 2013 as a result of International R&D collaboration.

FY 2006 Accomplishments:

- Not Applicable. See Projects BB, BI and BK of PE 0603160BR.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3	**PROJECT NAME AND NUMBER:** 0603160BR Project RA – Systems Engineering and Innovation

FY 2007 Plans:

- Not Applicable. See Projects BB, BI and BK of PE 0603160BR.

FY 2008 Plans:

- Support development of institutionalized plans for national response to pandemic flu.
- Complete development of all DTRA Security Cooperation Planning and associated annexes to support DoD nonproliferation, counterproliferation, and consequence management activities in selected nations within Combatant Commands' Areas of Responsibility.
- Complete gap analysis roadmap of Combating Weapons of Mass Destruction (WMD) mission and attendant issues with Combating Terrorism (CT) and Homeland Defense (HD) mission areas.
- Continue to support development and update of DTRA annexes to the U.S. European Command (EUCOM) Theater Security Cooperation Plans to insure DTRA assets are used to further Combating WMD mission in that theater.
- Continue to work with Supreme Headquarters Allied Powers, Europe (SHAPE) J3 and J6 for survivable, reliable communications to assure command, control and positive control of the nuclear mission with the goal of North Atlantic Treaty Organization (NATO) Infrastructure Committee procurement.

FY 2009 Plans:

- Institutionalize development of Combating WMD lessons learned in that theater and with international staff across the other Combatant Commands.
- Continue to support development and update of DTRA annexes to EUCOM Theater Security Cooperation Plans to insure DTRA assets are used to further Combating WMD mission in that theater.
- Institutionalize linkage with NATO/SHAPE and EUCOM in international R&D collaboration.
- Continue to work with SHAPE J3 and J6 for survivable, reliable communications to assure command, control and positive control of the nuclear mission with the goal of NATO Infrastructure Committee procurement.

C. Other Program Funding Summary:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
PE 0602718BR: Project RA - Systems Engineering and Innovation	0.000	0.000	22.000	26.472

D. Acquisition Strategy: Not Applicable.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3	**PROJECT NAME AND NUMBER:** 0603160BR Project RA – Systems Engineering and Innovation

E. Major Performer: Not Applicable.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3	**PROJECT NAME AND NUMBER:** 0603160BR Project RE – Counter-Terrorism Technologies

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project RE - Counter-Terrorism Technologies	0.000	0.000	44.109	45.424	45.399	44.367	44.367	44.367

* Funding and activities realigned from Projects BJ and BK of PE 0603160BR in FY 2008.

A. Mission Description and Budget Item Justification:

The Counter-Terrorism Technologies Project is an over-arching project that has three distinct functional areas in support of Joint U.S. Military Forces, specifically United States Special Operations Command (USSOCOM). The R&D support to SOCOM is one of the highest priority mission areas in the Global War On Terrorism and a top priority for DTRA. The following efforts are included in this project:

Develop innovative technologies, energetic materials, and software programs to identify, defeat, contain and mitigate WMD-capable Improvised Explosive Devices (IEDs).

Develop and transition the full spectrum of new technologies for Joint U.S. Military Forces to counter WMD, enabling warfighters, specifically Special Operations Forces (SOF), to improve their ability to detect, disable, interdict, neutralize, and destroy chemical, biological, and nuclear production, storage, and weaponization facilities.

Provide oversight for CP R&D resources sent directly to USSOCOM that are used to develop SOF-unique technologies in support of SOCOM's Counter-proliferation (CP) mission. New CP technologies are developed under SOCOM management that provides SOF with the operational capability to counter WMD threats. Specific technologies are classified Alternative or Compensatory Control Measures (ACCM).

B. Accomplishments/Planned Program:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Project RE - Counter-Terrorism Technologies	0.000	0.000	44.109	45.424

* Funding and activities realigned from Projects BJ and BK of PE 0603160BR in FY 2008.

Performance Metrics:

- Number of technologies developed and delivered that increase the potential mission success and reduces the number of current gaps in SOF capabilities to counter WMD when conducting Global War On Terrorism operations.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3	**PROJECT NAME AND NUMBER:** 0603160BR Project RE – Counter-Terrorism Technologies

FY 2006 Accomplishments:
- Not Applicable. See Projects BJ and BK of PE 0603160BR.

FY 2007 Plans:
- Not Applicable. See Projects BJ and BK of PE 0603160BR.

FY 2008 Plans:
- Research and develop technologies to enhance the capabilities of U.S. Forces in the Global War On Terrorism to counter WMD and improve their ability to detect, disable, interdict, neutralize, and destroy chemical, biological, and nuclear production, storage, and weaponization facilities.
- Deliver Special Operations Forces (SOF)-unique technologies. Projects planned for completion: Non-intrusive Detection (PINS-3), Gellants, Biological Detection and Identification, Phase II of Integrated Micro-Climatization System (IMCS).
- Provide management oversight and technical assistance for SOF-unique technologies, and develop enhanced SOF capabilities in coordination with United States Special Operations Command (USSOCOM).
- Develop WMD/Improvised Explosive Device (IED) defeat technologies that will increase Explosive Ordinance Disposal (EOD) capabilities to identify, defeat and contain a chemical, biological and radiological dispersal devise.
- Initiate terrorist pathway counter proliferation ATD (Specific technologies are classified Alternative Compensative Control Measures (ACCM)).
- Conduct Military Unit Assessment/Independent Validation and Verification of proven technologies.

FY 2009 Plans:
- Continue to support research and development of technologies to enhance the capabilities of U.S. Forces in the Global War On Terrorism to counter WMD and improve their ability to detect, disable, interdict, neutralize, and destroy chemical, biological, and nuclear production, storage, and weaponization facilities.
- Deliver SOF-unique technologies under the SOF Venture program. Projects planned for completion: Global Positioning Systems (GPS)-Denied Navigation and Mapping (GPS DNM), Phase III (final) of Integrated Micro-Climatization System (IMCS), NanoCatalysts.
- Continue development of various SOF-unique technologies under the SOF Venture program.
- Continue terrorist pathway counter proliferation ATD (Specific technologies are classified ACCM).

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3	**PROJECT NAME AND NUMBER:** 0603160BR Project RE – Counter-Terrorism Technologies

- Conduct Military Unit Assessment/Independent Validation and Verification of proven technologies. Provide management oversight and technical assistance for SOF-unique technologies, and develop enhanced SOF capabilities in coordination with USSOCOM.
- Develop WMD/IED defeat technologies that will increase EOD capabilities to identify, defeat and contain a chemical, biological and radiological dispersal devise.

C. Other Program Funding Summary: Not Applicable.

D. Acquisition Strategy: Not Applicable.

E. Major Performer: Not Applicable.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3	**PROJECT NAME AND NUMBER:** 0603160BR Project RF – Detection Technology

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project RF - Detection Technology	0.000	0.000	39.305	41.213	43.783	47.589	49.186	46.967

***** Funding and activities realigned from Projects BG and BH of PE 0602717BR and Project BI of PE 0603160BR in FY 2008.

A. Mission Description and Budget Item Justification:

This project develops technologies, systems and procedures to detect, identify, track, tag, locate, monitor and interdict strategic and improvised nuclear and radiological weapons, components, or materials in support of DoD requirements for combating terrorism, counter- and non-proliferation, homeland defense, and international initiatives and agreements. This project also develops the tools, technologies, communications, models, databases, and displays for forensic sampling and analysis of post-nuclear detonation debris fields to support the accurate identification and characterization of the weapons and sources of the material employed. Efforts under this project also support international peacekeeping and nonproliferation objectives, on-site and aerial inspections and monitoring, on-site sampling and sample transport, and on- and off-site analysis to meet forensic, verification, monitoring and confidence-building requirements.

The Detection Technology project under WMD Proliferation Prevention and Defeat emphasizes the advanced technology development and engineering portion of the overall effort.

B. Accomplishments/Planned Program:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Project RF - Detection Technology	0.000	0.000	39.305	41.213

*Funding and activities realigned from Projects BG and BH of PE 0602717BR and Project BI of PE 0603160BR in FY 2008.

Performance Metrics:

- Completion and successful laboratory testing of the helium dimer Compton imager.
- Test/demonstrate Secret/Restricted Data (S/RD) and Secret Internet Protocol Router Network (SIPRNet) communications capabilities from field units; deliver audit report for end-to-end technology demonstration of National Technical Nuclear Forensics for Attribution (NTNF) system.
- Successfully develop data integration capability with future interagency comprehensive, all domain WMD detection architecture.

- Deploy upgraded technology and Concept of Operations for sample collection, Radiochemistry (RADCHEM) analysis, encrypted communications, and data analysis; develop plan for faster diagnostics based on technology demonstrations; formulate program direction for advanced forensic sampling concepts.
- Detection standoff distance: handheld identification of 1 kilogram of shielded Highly Enriched Uranium (HEU) at 5 meters.

FY 2006 Accomplishments:
- Not Applicable. See Projects BG and BH of PE 0602717BR and Project BI of PE 0603160BR.

FY 2007 Plans:
- Not Applicable. See Projects BG and BH of PE 0602717BR and Project BI of PE 0603160BR.

FY 2008 Plans:
- Develop integrated detection systems exploiting advances in solid state nuclear detectors, processing electronics, analysis software, identification technology, and integrated nuclear/biological/chemical sensor technology, eliminating the logistical burden of cryogenic cooling as well as bulky gas detectors.
- Complete a Joint Capability Technology Demonstration (JCTD) effort demonstrating a modular nuclear radiation detection system capable of being mounted on multiple platforms (vehicular, aerial, marine, and handheld) and being deployed in both overt and covert situations and that can be seamlessly integrated into a sensor network to provide battlespace awareness for the theater commander. This JCTD should result in transitioning a viable modular nuclear detection system to Combatant Commands.
- Complete development of a baseline DoD large standoff active interrogation system to provide a reference standard for evaluating progress and capabilities in standoff detection and warning of hidden and shielded nuclear material.
- Execute evaluation of distributed sensor systems, their communications, and their signal processing to support a prioritized development program of networks for defense, security and tracking.
- Conduct end-to-end demonstration and audit (evaluation) of global National Technical Nuclear Forensics for Attribution (NTNF) capability.
- Develop sensors to detect WMD threats as far forward as possible and in all operational environments. Develop the capability to integrate data with future interagency comprehensive, all-domain WMD detection architecture from collection to dissemination.
- Provide enhanced technical support and analysis to the Nuclear Weapons Council (NWC) and Nuclear Weapons Council Standing and Safety Committee (NWCSSC) and other high-level committees and senior decision-makers to transform the nuclear stockpile and infrastructure.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3	**PROJECT NAME AND NUMBER:** 0603160BR Project RF – Detection Technology

FY 2009 Plans:

- Continue program for developing integrated detection systems exploiting advances in solid state nuclear detectors, processing electronics, analysis software, identification technology, and integrated nuclear/biological/chemical sensor technology.
- Initiate a full scale test and evaluation campaign for Compton imagers and a second generation effort to develop more integrated and compact imagers with enhanced capability. These second generation imagers will be more optimized to operate with an active excitation source directed at the target item.
- Continue the extensive effort begun in the Joint Capability Technology Demonstration (JCTD) to integrate solid state detectors, communications, and processors into a robust self-configuring sensor network for detecting, identifying, and tracking nuclear materials in transit.
- Complete a testing and evaluation program to assess the capabilities of biomarker expression for monitoring acute radiation exposure in Messenger Ribonucleic Acid (mRNA) and proteins utilizing voluntary human subjects, probably oncology patients, to evaluate the ability of the biodosimeter to accurately measure exposure.
- Conduct Concept of Operations demonstrations of upgraded technical capabilities for sample collection, radiochemical analysis, Secret/Restricted Data-level field-laboratory communications, and integration of design modeling and forensic data for identification and attribution.
- Develop technical information to support programmatic decisions regarding next-generation ground sampling platform, marine sampling capability, and next-generation Unmanned Aerial Vehicle (UAV) systems for air and for ground sampling.
- Continue to provide enhanced technical support and analysis to the Nuclear Weapons Council (NWC) and Nuclear Weapons Council Standing and Safety Committee (NWCSSC) and other high-level committees and senior decision-makers to transform the nuclear stockpile and infrastructure.

C. Other Program Funding Summary:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
PE 0602718BR: Project RF – Detection Technology	0.000	0.000	26.299	32.498

D. Acquisition Strategy: Not Applicable.

E. Major Performer: Not Applicable.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3	**PROJECT NAME AND NUMBER:** 0603160BR Project RG – Advanced Energetics & Counter WMD Weapons

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project RG - Adcanced Energetics & Counter WMD Weapons	0.000	0.000	20.470	20.550	19.670	24.706	29.321	37.997

*Funding and activities realigned from Project BK of PE 0603160BR in FY 2008.

A. Mission Description and Budget Item Justification:

This project provides advanced technology development and demonstration for defeating WMD targets (including facilities with biological and chemical agents) while minimizing collateral damage and release of those agents when using air, land and sea assets brought to the theater by the warfighters. These objectives will be accomplished by a combination of developing and/or maturing technologies, weapon systems, weapon concepts and methods. Supported products are: (1) advanced counter-WMD weapons, fuzing technology, and robotics; (2) counter force agent defeat weapons and methods; and (3) disruptive payloads and delivery systems.

B. Accomplishments/Planned Program:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Project RG - Adcanced Energetics & Counter WMD Weapons	0.000	0.000	20.470	20.550

*Funding and activities realigned from Project BK of PE 0603160BR in FY 2008.

Performance Metrics:

- Percent increase of Counter WMD weapon performance compared to fielded weapons (e.g. Bomb, Live Unit (BLU)-109 and BLU-113).

FY 2006 Accomplishments:

- Not Applicable. See Project BK of PE 0603160BR.

FY 2007 Plans:

- Not Applicable. See Project BK of PE 0603160BR.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3	**PROJECT NAME AND NUMBER:** 0603160BR Project RG – Advanced Energetics & Counter WMD Weapons

FY 2008 Plans:

- Continue development of advanced counter-WMD weapons and counter-force agent defeat weapons.
- Conduct high speed munition warhead component level tests supporting demonstration of improved penetration over fielded weapons.
- Initiate development of Directed Energy (DE) payload for demonstration of a counter WMD deny/disrupt mission concept.
- Site and begin building Reusable Full-Scale Live Simulant testbed to support counterforce agent defeat testing.
- Complete Joint Direct Attack Munition (JDAM) Guidance Kit Integration and Demonstration with Bomb, Live Unit (BLU)-121.
- Complete Alternate BLU-121 Manufacturing Process Qualification Testing.

FY 2009 Plans:

- Continue development of advanced counter-WMD weapons and counter-force agent defeat weapons.
- Integrate/test Insensitive Munition (IM) Agent Defeat (AD) BLU-109 payload supporting Air Force tactics, techniques and procedures for the Shredder program.
- Support the Acquisition Transition Program Support and Weapon Effects Targeting Analysis for BLU-121.

C. Other Program Funding Summary:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
PE 0602718BR: Project RG – Advanced Energetics and Counter WMD Weapons	0.000	0.000	27.899	30.748

D. Acquisition Strategy: Not Applicable.

E. Major Performer: Not Applicable.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3	**PROJECT NAME AND NUMBER:** 0603160BR Project RI – Nuclear Survivability

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project RI - Nuclear Survivability	0.000	0.000	18.848	18.867	18.867	18.867	18.868	18.869

* Funding and activities realigned from Project BH of PE 0602717BR in FY 2008.

A. Mission Description and Budget Item Justification:

This project develops and demonstrates Radiation Hardened Microelectronics (RHM) for nuclear hardening and survivability of DoD systems on the Radiation Hardened Oversight Council (RHOC) Technology Roadmap and provides for the execution of force-on-force evaluations and nuclear weapons surety efforts to enhance the protection of nuclear resources.

The RHM program responds to DoD space and missile system requirements for radiation-hardened microelectronics and photonics technology to support mission needs. This program develops and demonstrates radiation-hardened, high performance prototype microelectronics to support the availability of radiation-hardened microelectronics and photonics for DoD missions from both private sector and government organizations.

MIGHTY GUARDIAN Force-on-Force tests aid in satisfying requirements for the Air Force and Navy by providing denial of access to nuclear weapons in all environments; operational, storage and in transit. The results of the evaluations identify security vulnerabilities to weapons systems that are then addressed through targeted application of research and development projects requested by the Air Force and Navy resource owners. These projects are designed to demonstrate, test, and evaluate security enhancement systems prior to service procurement.

Nuclear Weapons Surety, as tasked by the DoD Nuclear Weapon System Safety Program, provides Combatant Commands, Services, and Joint Chiefs of Staff with technical analyses, studies, research, and experimental data necessary to identify and quantify risks of plutonium dispersal and Loss of Assured Safety due to accidents, fires or natural causes during peacetime operations of the nation's nuclear weapon systems. Additionally, this will provide studies necessary to quantify the probability of success against targeted terrorist attacks on DoD facilities, while leveraging these risk assessment advances. It also provides new and innovative technologies for the protection of nuclear resources in support of Combatant Commands and Services.

B. Accomplishments/Planned Program:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Project RI - Nuclear Survivability	0.000	0.000	18.848	18.867

* Funding and activities realigned from Project BH of PE 0602717BR in FY 2008.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3	**PROJECT NAME AND NUMBER:** 0603160BR Project RI – Nuclear Survivability

Performance Metrics:

- Achieve Radiation Hardened (RH) 150nm structured- Application-Specific Integrated Circuit (ASIC), RH 150nm 16M Static Random Access Memory (SRAM) and Radiation Hardened by Design (RHBD) 90nm reconfigurable Field Programmable Gate Array (r-FPGA).
- Successful completion of Mighty Guardian exercises is measured by completing all necessary planning and logistics steps, troops arriving when required, training completed, execution of the exercise, redeployment of forces, and publishing a final report within 90 days of completion.
- Successful completion of exploratory research for physical security equipment and technology is determined by performers completing the project on-time and within budget, all stated tasks in the statement of objectives being met, proper reporting and coordination of decision areas, receipt of final reports closing out the project, and transitioning the project to the requesting Service.

FY 2006 Accomplishments:

- Not Applicable. See Projects BH of PE 0602717BR.

FY 2007 Plans:

- Not Applicable. See Projects BH of PE 0602717BR.

FY 2008 Plans:

- Demonstrate bulk silicon 90 nanometer (nm) radiation hardened by design technology and design libraries.
- Perform initial characterization of single event effects in 90nm technology and 65nm technologies.
- Demonstrate > 4 gigahertz (GHz) high speed radiation effects test capability.
- Demonstrate prototype silicon-on-insulator 150nm 4Mgate structured- Application-Specific Integrated Circuit (ASIC).
- Demonstrate radiation hardened 90/150nm analog/mixed-signal Phased/Delay Lock Loop circuits.
- Demonstrate 150nm radiation hardened bulk silicon & silicon-on-insulator libraries and electronic design automation technology.
- Conduct Mighty Guardian XII Force-On-Force test at Bangor, WA to evaluate nuclear security policy as it applies to weapons movement convoys from the limited area to the explosives handling wharf.
- Conduct exploratory research on physical security equipment and technology designed to enhance protection of the nuclear stockpile as determined by the Services.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3	**PROJECT NAME AND NUMBER:** 0603160BR Project RI – Nuclear Survivability

FY 2009 Plans:

- Demonstrate 90 nanometer (nm) technology substrate hardening technology.
- Demonstrate radiation hardened 90nm bulk silicon process technology and digital library.
- Demonstrate radiation hardened 150nm combined digital and analog/mixed signal Application Specific Integrated Circuits (ASIC).
- Demonstrate bulk silicon 90nm radiation hardened by design digital and analog/mixed signal libraries and System-on Chip electronic design automation technology.
- Conduct Mighty Guardian XIII Force-On-Force test to evaluate nuclear security policy as it applies to bomber generation at a location in the Air Combat Command area of operations.
- Conduct Mighty Guardian XIV Force-On-Force test at Kings Bay, GA to evaluate nuclear security policy as it applies to the waterfront.
- Conduct exploratory research on physical security equipment and technology designed to enhance protection of the nuclear stockpile as determined by the Services.

C. Other Program Funding Summary:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
PE 0602718BR: Project RI - Nuclear Survivability	0.000	0.000	10.416	10.424

D. Acquisition Strategy: Not Applicable.

E. Major Performer: Not Applicable.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3	**PROJECT NAME AND NUMBER:** 0603160BR Project RM – WMD Battle Management

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project RM - WMD Battle Management	0.000	0.000	57.911	55.621	56.668	42.200	41.500	42.500

* Funding and activities realigned from Project BH of PE 0602717BR and Project BK of PE 0603160BR in FY 2008.

A. Mission Description and Budget Item Justification:

This project develops, integrates, demonstrates and transitions emerging/innovative technologies to support the Counter WMD Mission. This activity specifically focuses on two critical components in countering the WMD threat:

Develop end-to-end planning capabilities including weaponeering tools to aid the Combatant Commander's targeting and weapons officers in choosing the proper weapon, fuze, and employment parameters to optimize the defeat of WMD and related hard targets. Deliver modernized, validated and fast running attack planning tools and integrating software. Leverage attack planning tools to support force protection planners and vulnerability assessment teams.

Develop, integrate, demonstrate and transition emerging/innovative technologies to provide the warfighter with an enhanced near real-time combat and battle damage assessment capability. Capability is achieved through the development of Unmanned Aerial Systems (UAS) and weapon-based sensors, platforms, taggants, seekers and other innovative technologies to; remotely sense, identify, track and target WMD-related threats; perform battle damage assessment/indication of strikes against these threats; and locate, track, collect, detect, selectively identify, and characterize Chemical Weapon (CW) and Biological Weapon (BW) aerosol agents released during these WMD counterforce strikes.

B. Accomplishments/Planned Program:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Project RM - WMD Battle Management	0.000	0.000	57.911	55.621

*Funding and activities realigned from Project BH of PE 0602717BR and Project BK of PE 0603160BR in FY 2008.

Performance Metrics:

- Stand off detection range of WMD reconnaissance system.
- Number of new capabilities delivered to Combatant Commanders (COCOMs).
- Number of weaponeering solutions delivered to COCOMs.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3	**PROJECT NAME AND NUMBER:** 0603160BR Project RM – WMD Battle Management

FY 2006 Accomplishments:
- Not Applicable. See Project BH of PE 0602717BR and Project BK of PE 0603160BR.

FY 2007 Plans:
- Not Applicable. See Project BH of PE 0602717BR and Project BK of PE 0603160BR.

FY 2008 Plans:
- Continue development of WMD reconnaissance technologies and WMD planning tools.
- Conduct demonstration to validate tunnel facility defeat using optimized inventory weapons attack on Capitol Peak Tunnel facilities, White Sands Missile Range (WSMR).
- Demonstrate capability to launch and control FINDER Unmanned Aerial Vehicle (UAV) from AC-130 and MQ-1 Predator to address Air Force Special Operations Command (AFSOC) requirement for off-board, below the weather imagery for pre-strike target identification and post-strike battle damage assessment.
- Conduct Spiral 1 demonstration of the Biological Combat Assessment System.
- Conduct full scale static testing of taggant technology in Bomb, Live Unit (BLU)-116 Advanced Unitary Penetrator.
- Complete design of networking, telemetry and communication components for combat assessment sensors.
- Deliver Integrated Munitions Effects Assessment (IMEA) with improved groundshock model.
- Deliver Vulnerability Assessment and Protection Option (VAPO) with improved models for global response of framed structures
- Integrate advanced command and control (C^2) capabilities into DTRA Operations Center including the Army's Command Post of the Future (CPoF) and Joint Forces Command's "Joint" variant of CPoF for improved situational awareness.
- Integrate WMD data from the Intelligence Community (IC), Combatant Commands, Services, and Agencies into the WMD Common Operating Picture (COP) and continue research and development to provide that information into National Geospatial-Intelligence Agency's Palanterra global COP.

FY 2009 Plans:
- Continue development of WMD reconnaissance technologies and WMD planning tools.
- Study/develop prototype dispense delivery mechanisms for high speed weapons in support of Global Strike combat assessment requirements.
- Complete Developmental testing of sensor suite for real-time, weapon-borne Battle Damage Indication system.
- Deliver Integrated Munitions Effects Assessment (IMEA) with integration of additional net-centric components for weaponeering.
- Deliver Vulnerability Assessment and Protection Option (VAPO) integrating the Aircraft Impact Database.

- Conduct demonstration to validate command, control and communications (C3I) tunnel facility defeat using optimized inventory weapons attack on HTD Facility 2 tunnel (Nevada Test Site).
- Continue to integrate advanced command and control (C^2) capabilities into DTRA Operations Center including the Global Command and Control System version 4 (GCCS 4.X) software suite which will allow DTRA to seamlessly share information between Combatant Commands and the inter-agency community.
- Integrate improved geospatial information, such as that provided by National Geospatial-Intelligence Agency, National Reconnaissance Office, and Project Angel Fire, into the WMD Common Operating Picture and other Command and Control capabilities for enhanced decision support.

C. Other Program Funding Summary:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
PE 0602718BR: Project RM - WMD Battle Management	0.000	0.000	26.158	29.411

D. Acquisition Strategy: Not Applicable.

E. Major Performer: Not Applicable.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3	**PROJECT NAME AND NUMBER:** 0603160BR Project RT – Target Assessment Technologies

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project RT - Target Assessment Technologies	0.000	0.000	23.471	26.193	28.148	30.051	30.411	30.421

* Funding and activities realigned from Project BF of PE 0602716BR in FY 2008.

A. Mission Description and Budget Item Justification:

This project represents the maturation of previous target characterization efforts. While complete physical destruction may be desired, for some hard and deeply buried targets this effect isn't practicable with current weapons and employment techniques. It may be possible, however, to deny or disrupt the mission or function of a facility. Functional defeat is facilitated through better data collection and intelligence. The defeat process includes finding and identifying a facility, characterizing its function and physical layout, determining its vulnerabilities to available weapons, planning an attack, applying force, assessing damage, and if necessary, suppressing reconstitution efforts and re-striking the facility. Target Assessment Technologies supports the Intelligence Community and the Combatant Commands (COCOMs) by providing technologies and processes to find and characterize hard and deeply buried targets and then assess the results of attacks against those targets. Overall objectives are to develop new methodologies, processes and technologies for detecting, locating, identifying, physically and functionally characterizing, modeling, and assessing new and existing hard and deeply buried targets to support full dimensional defeat operations. Extending this activity to hardened WMD target characterization and analysis capability presents even greater technical challenges. Target Assessment Technologies consists of three subordinate and related activities, Targeting and Intelligence Community technologies, Find, Characterize, Assess technology development, and the WMD Target Research Analysis Center initiative.

B. Accomplishments/Planned Program:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Project RT - Target Assessment Technologies	0.000	0.000	23.471	26.193

*Funding and activities realigned from Project BF of PE 0602716BR in FY 2008.

Performance Metrics:

- Number of target characterizations, 3-D target models and weaponeering solutions delivered to the COCOMs and Intelligence Community in response to prioritized requirements.
- Number of new geological properties models added to the geological characterization process each year.
- Efficiency of Underground Targeting and Analysis System (UTAS).

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3	**PROJECT NAME AND NUMBER:** 0603160BR Project RT – Target Assessment Technologies

FY 2006 Accomplishments:
- Not Applicable. See Project BF of PE 0602716BR.

FY 2007 Plans:
- Not Applicable. See Project BF of PE 0602716BR.

FY 2008 Plans:
- Continue research and development of targeting and Intelligence Community technologies and find/characterize/assess technologies.
- Begin research and development support for a WMD Target Research and Analysis Center.
- Enhance the Underground Targeting and Analysis System (UTAS) software capability to include the capability to model additional Underground Facility (UGF) structural details and WMD functional features.
- Continue to provide target characterization training to increase the size and expertise of the UGF and WMD target defeat communities.
- Conduct a UGF vulnerability assessment exercise with the operations and intelligence communities to gauge the effectiveness of our target characterization tools and processes.
- Develop a prototype Integrated Sensor System for use in UGF characterization and assessment demonstrations.
- Continue development of UGF signature recognition capability to facilitate functional characterization of UGF targets for the Combatant Commands (COCOMs) and Intelligence Community.
- Develop additional geological materials models and enhanced site-specific geological characterization processes to increase the fidelity and accuracy of our UGF characterizations.

FY 2009 Plans:
- Continue research and development of targeting and Intelligence Community technologies and find/characterize/assess technologies.
- Begin research and development support for a WMD Target Research and Analysis Center.
- Deliver enhanced UTAS special operations mission planning capabilities to the special operations community.
- Continue to provide target characterization training for the UGF and WMD target defeat communities.
- Conduct an exercise with the operations and intelligence communities to evaluate the effectiveness of our tools and processes to support the characterization of UGF and WMD targets.
- Perform a developmental evaluation of the capability of a prototype Integrated Sensor System to support the UGF and WMD target characterization and assessment processes.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA 3	**PROJECT NAME AND NUMBER:** 0603160BR Project RT – Target Assessment Technologies

- Continue development of an Underground Facility (UGF) signatures database to facilitate functional characterization of UGF targets for the Combatant Commands and Intelligence Community.
- Develop additional geological materials models to increase the fidelity and accuracy of our UGF characterizations.

C. Other Program Funding Summary: Not Applicable.

D. Acquisition Strategy: Not Applicable.

E. Major Performer: Not Applicable.

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/System Development and Demonstration – BA5	**R-1 ITEM NOMENCLATURE:** WMD Defeat Capabilities; 0605000BR

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total 0605000BR Cost	**0.000**	**0.000**	**15.394**	**15.946**	**15.767**	**13.859**	**12.828**	**11.204**
RL - Nuclear & Radiological Effects	0.000	0.000	15.394	15.946	15.767	13.859	12.828	11.204

A. Mission Description and Budget Item Justification:

This project extends nuclear and radiological modeling and simulation development to system development and demonstration by developing nuclear and radiological assessment modeling tools and WMD integrated architecture to support military operational planning, weapon effects predictions, and strategic system design decisions; consolidate validated DTRA modeling tools into net-centric environment for integrated functionality capable of predicting system responses to nuclear and radiological weapons producing electromagnetic, thermal, blast, shock and radiation environments in addition to chemical, biological, and conventional weapons. Key systems/environments include space assets, missiles, structures, networks, urban areas, and humans.

B. Program Change Summary:

($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget	**0.000**	**0.000**	**0.000**	**0.000**
Current President's Budget	**0.000**	**0.000**	**15.394**	**15.946**
Total Adjustment	**0.000**	**0.000**	**15.394**	**15.946**
Congressional program reductions				
Congressional reductions				
Congressional increases				
Reprogramming				
SBIR/STTR Transfer				
Other program adjustments			**15.394**	**15.946**

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/System Development and Demonstration – BA5	**R-1 ITEM NOMENCLATURE:** WMD Defeat Capabilities; 0605000BR

Change Summary Explanation:

- This effort is funded by shifting funding from Project BD of PE 0602716BR to this program element in FY 2008 to support system development and demonstration by developing advanced nuclear and radiological assessment modeling tools with WMD integrated architecture.

C. Other Program Funding Summary: For FY 2007 and previous years, the projects within this Program Element were funded under Project BD - Weapons Effects Technologies, Program Element 0602716BR, budget activity 2 (Applied Research). There are no other projects with concurrent development or funding dependencies to report.

D. Acquisition Strategy: The programs for Integrated Weapons of Mass Destruction Toolset (IWMDT), Nuclear Capability Services (NuCS), and Consequence of Execution (CoE) are executed through competed, CPAF and CPFF contracts. These contracts are normally 3-year efforts for software development, test, and integration. Follow-on contracts will be competed for award to continue any out-year activities. For FY 2006, FY 2007, and previous year efforts, these programs were managed under Activity 2 (Applied Research) under Program Element 0602716BR. Beginning in FY 2008, these activities continue with their transition into PE 0605000BR under Activity 5 (System Development and Demonstration).

E. Performance Metrics: Program cost, schedule and performance are measured using a systematic approach with approved programs and methods. The results of these measurements are presented to DTRA management on a regular basis to determine program effectiveness and to provide new direction as needed to ensure the efficient use of resources. Program specific performance metrics are outlined within each project description.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/System Development and Demonstration – BA5	**PROJECT NAME AND NUMBER:** 0605000BR Project RL- Nuclear and Radiological Effects

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
RL - Nuclear & Radiological Effects	0.000	0.000	15.394	15.946	15.767	13.859	12.828	11.204

*Funding and activities realigned from Project BD of PE 0602716BR in FY 2008.

A. Mission Description and Budget Item Justification:

Advanced Modeling Systems includes three functional areas 1) Nuclear Capability Services (NuCS), 2) Integrated Weapons of Mass Destruction Toolset (IWMDT), and 3) Consequence of Execution-Nuclear Integration (CoE-NI). NuCS develops the capabilities for the US and its allies for state-of-the-art, secure, accredited, nuclear & radiological Modeling & Simulation (M&S) capabilities. IWMDT develops the architecture, defines and implements the standards to consolidate validated DTRA tools enabling rapid access for planning, emergency response and assessment capabilities used by a wide range of planners, managers and operational and technical personnel facing the full spectrum of CBRNE threats. IWMDT incorporates the capabilities developed across the DTRA R&D Enterprise, external R&D and required operational capabilities, and provides integrated functionality in the conventional, nuclear and unconventional areas. Consequence Assessment (CA) provides the integration of DTRA's hazard prediction and consequence assessment models. It provides Consequence of Execution (CoE) modeling capability to US Strategic Command (STRATCOM) as well as CA integration and testing for transition to the Joint Effects Model (JEM), Chemical-Biological Defense Program for hazard prediction. It also provides the capability for theater-level land, sea, and air battle simulation, incorporating WMD, for Joint Staff, US Pacific Command (PACOM), and US Northern Command (NORTHCOM). This sub-project extends research and development to system development and demonstration.

B. Accomplishments/Planned Program:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
RL - Nuclear & Radiological Effects	0.000	0.000	15.394	15.946

Performance Metrics:

- Demonstrate and provide over 80% of the customer-required Nuclear Weapons Effects (NWE) modeling and simulation capabilities over networks, e.g. DoD Global Information Grid (GIG).
- Transform 100% of the mission-required legacy DTRA NWE codes to meet Verification, Validation, and Accreditation (VV&A) standards.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/System Development and Demonstration – BA5	**PROJECT NAME AND NUMBER:** 0605000BR Project RL- Nuclear and Radiological Effects

FY 2006 Accomplishments:

- Not Applicable. See Project BD in PE 0602716BR.

FY 2007 Plans:

- Not Applicable. See Project BD in PE 0602716BR.

FY 2008 Plans:

- Complete Nuclear Capability Services (NuCS) Integration Spiral 2 by demonstrating and providing over 80% of the customer-required nuclear weapon effects modeling and simulation capabilities in a net-centric environment. This includes transforming at least 25% of the mission required legacy (pre-2005) DTRA codes to meet Verification, Validation, and Accreditation (VV&A) standards.
- Provide net-centric Chemical, Biological, Nuclear and Radiological (CBRN) capabilities enabling rapid integration of these capabilities into the Joint Effect Model (JEM) Block II architecture through technology transfer initiatives.
- Provide a one-point entry portal providing common CBRN capabilities distributed to the edge. At the edge the user is provided a rapidly adaptable operational assessment based on validated codes, subject matter expert support and cutting edge technology capable of real-time assessments.
- Update the foreign nuclear weapon output reference, Redbook Volume 1, to include Strategic Systems.

FY 2009 Plans:

- Complete Nuclear Weapon Effects Users Group (NWEUG) accreditation of modeling and simulation in the NuCS.
- Provide fully distributed, transportable and mobile CBRN capability solution meeting the CBRN requirements of forward deployed military, first responders, analyst, and future planning users. Through this capability, users can fully customize the CBRN portal to meet their decision support, analysis, and collaborative mission planning through a single view.
- Update the foreign nuclear weapon output reference, Redbook Volume 3, to include proliferant systems.

C. Other Program Funding Summary: For FY 2007 and previous years, the projects within this Program Element were funded under Project BD - Weapons Effects Technologies, Program Element 0602716BR, budget activity 2 (Applied Research). There are no other projects with concurrent development or funding dependencies to report.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/System Development and Demonstration – BA5	**PROJECT NAME AND NUMBER:** 0605000BR Project RL- Nuclear and Radiological Effects

D. Acquisition Strategy: The programs for Integrated Weapons of Mass Destruction Toolset (IWMDT), Nuclear Capability Services (NuCS), and Consequence of Execution (CoE) are executed through competed, CPAF and CPFF contracts. These contracts are normally 3-year efforts for software development, test, and integration. Follow-on contracts will be competed for award to continue any out-year activities. For FY 2006, FY 2007, and previous year efforts, these programs were managed under Activity 2 (Applied Research) under Program Element 0602716BR. Beginning in FY 2008, these activities continue with their transition into PE 0605000BR under Activity 5 (System Development and Demonstration).

E. Major Performers: Not Applicable.

Exhibit R-3, RDT&E Project Cost Analysis								Date: February 2007				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, Defense Wide / BA-5**			PROGRAM ELEMENT **0605000BR**					PROJECT NAME AND NUMBER **WMD Defeat Capabilities**				
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
System Development--IWMDT	C/CPAF	SAIC -- San Diego, CA	0	0		7000	Nov-07	7000	Nov-08	28000	42000	42000
System Development--NuCS	C/CPFF	Applied Research Associates -- Albuquerque, NM	0	0		1750	Nov-07	1518	Nov-08	2390	5658	5658
System Development--COE	C/CPFF	Titan -- Kingstowne, VA	0	0		1050	Nov-07	1050	Nov-08	2390	4490	4490
System Development--Component Contracts	Various	Various	0	0		1394	Various	2278	Various	4780	8452	8452
Subtotal Product Development			0	0		11194		11846		37561	60600	60600
Remarks: The "Various" reported reflects multiple contracts, mainly CPFF.												
Configuration Management	C/CPAF/CPFF	SAIC, ARA, Titan	0	0		61	Nov-07	61	Nov-08	180	302	302
Software Integration	C/CPAF/CPFF	SAIC, ARA, Titan	0	0		1300	Nov-07	1300	Nov-08	6079	8679	8679
Technical Data	C/CPAF/CPFF	SAIC, ARA, Titan	0	0		21	Nov-07	21	Nov-08	70	112	112
Engineering Services	C/CPAF/CPFF	SAIC, ARA, Titan	0	0		657	Nov-07	607	Nov-08	1540	2804	2804
Accreditation & Certification	C/CPAF/CPFF	SAIC, ARA, Titan	0	0		61	Nov-07	61	Nov-08	180	302	302
Subtotal Support			0	0		2100		2050		8049	12199	12199
Remarks												

Exhibit R-3, RDT&E Project Cost Analysis (page 2)								Date: February 2007				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, Defense Wide / BA-5**			PROGRAM ELEMENT **0605000BR**					PROJECT NAME AND NUMBER **WMD Defeat Capabilities**				
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost ($000)	FY 2007 Cost ($000)	FY 2007 Award Date	FY 2008 Cost ($000)	FY 2008 Award Date	FY 2009 Cost ($000)	FY 2009 Award Date	Cost to Complete ($000)	Total Cost ($000)	Target Value of Contract
Developmental Test & Evaluation	C/CPAF/CPFF	SAIC, ARA, Titan	0	0		525	Nov-07	513	Nov-08	2012	3050	3050
Operational Test & Evaluation	C/CPAF/CPFF	SAIC, ARA, Titan	0	0		525	Nov-07	513	Nov-08	2012	3050	3050
Subtotal T&E			0	0		1050		1025		4024	6099	6099
Remarks												
Program Management	C/CPAF/CPFF	SAIC, ARA, Titan	0	0		525	Nov-07	513	Nov-08	2012	3050	3050
Travel	C/CPAF/CPFF	SAIC, ARA, Titan	0	0		263	Nov-07	256	Nov-08	1006	1525	1525
Overhead	C/CPAF/CPFF	SAIC, ARA, Titan	0	0		263	Nov-07	256	Nov-08	1006	1525	1525
Subtotal Management			0	0		1050		1025		4024	6099	6099
Remarks												
Total Cost			0	0		15394		15946		53658	84998	84998

Remarks

"All PY Costs" and FY 2007 costs and activities for IWMDT, NuCS, and COE are assigned under Project BD of PE 0602716BR. IWMDT was funded in 2004 by a competed, CPAF contract for $12,425,028 over a 3-year period. At end of FY 2006, its follow-on contract was awarded with an initial $300,000 increment. IWMDT program efforts continue in 2007 with $5,361,428 now applied. Likewise, the NuCS program was funded under a competed, CPFF contract over a 3-year period. Funding of $2,913,235 was applied over FY 2005 through FY 2006; $3,000,000 has been applied in FY 2007 to continue program efforts. COE will be funded under a competed, CPFF contract to be awarded FY 2007 with an initial increment of $1,500,000. Beginning in FY 2008, these activities continue with their transition into PE 0605000BR.

Exhibit R-4, RDT&E Program Schedule Profile		Date: February 2007
Appropriation/Budget Activity: RDT&E, Defense Wide BA 5	Program Element Number and Name: PE 0605000BR WMD Defeat Capabilities	Project Name and Number: Nuclear and Radiological Effects -- RL

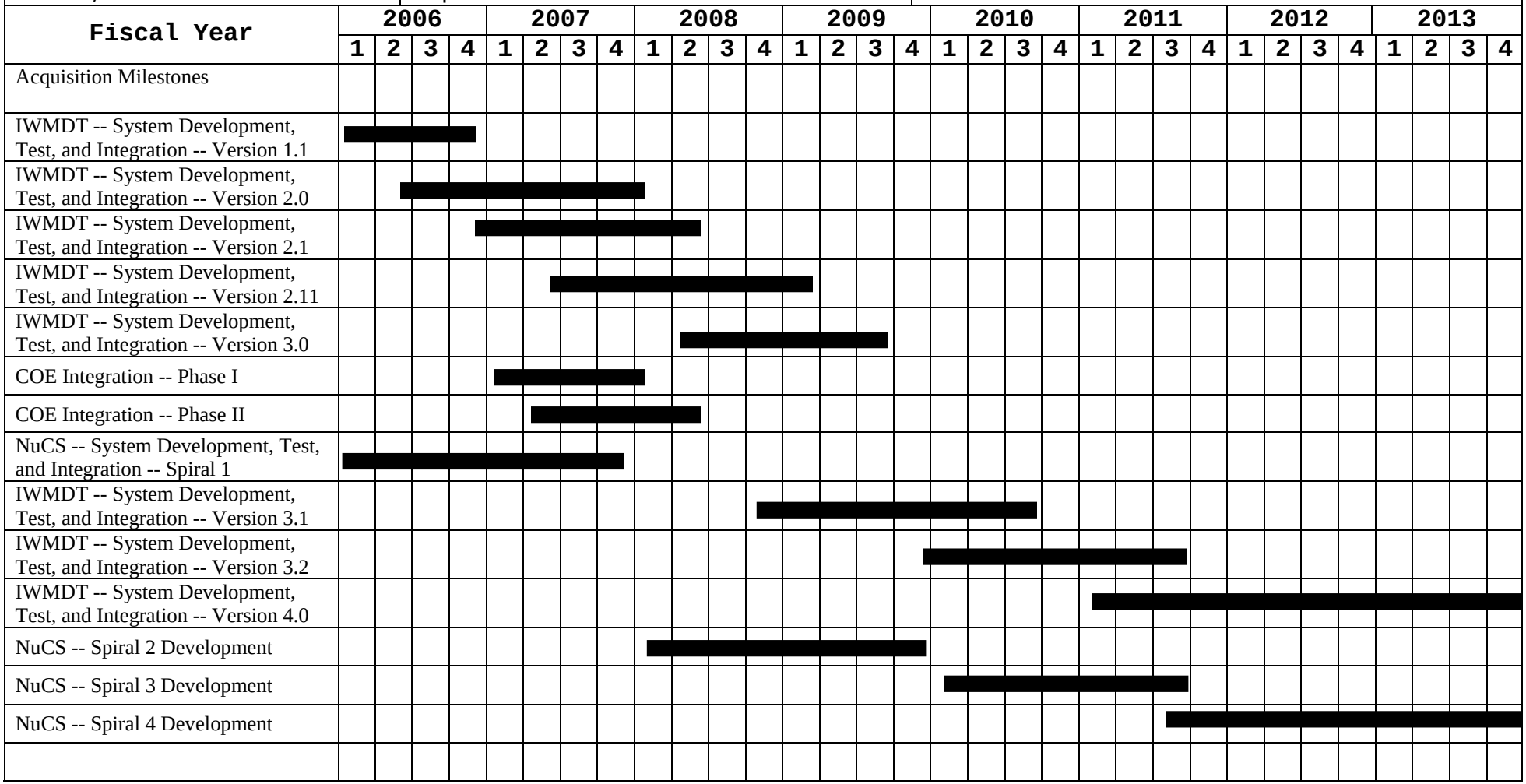

Exhibit R-4a, Program Schedule Detail					Date: February 2007			
Appropriation/Budget Activity RDT&E, Defense Wide BA 5	Program Element Number and Name: PE 0605000BR WMD Capabilities				Project Name and Number: Nuclear and Radiological Effects -- RL			
Schedule Profile	**FY2006**	**FY2007**	**FY2008**	**FY2009**	**FY2010**	**FY2011**	**FY2012**	**FY2013**
IWMDT -- System Development, Test, and Integration -- Version 1.1	1-4Q							
IWMDT -- System Development, Test, and Integration -- Version 2.0	2-4Q	1-4Q						
IWMDT -- System Development, Test, and Integration -- Version 2.1	4Q	1-4Q	1-2Q					
IWMDT -- System Development, Test, and Integration -- Version 2.11		2-4Q	1-4Q	1Q				
IWMDT -- System Development, Test, and Integration -- Version 3.0			2-4Q	1-3Q				
COE Integration -- Phase I		1-4Q						
COE Integration -- Phase II		2-4Q	1-2Q					
NuCS -- System Development, Test, and Integration -- Spiral 1	1-4Q	1-4Q	3-4Q					
IWMDT -- System Development, Test, and Integration -- Version 3.1			4Q	1-4Q	1-3Q			
IWMDT -- System Development, Test, and Integration -- Version 3.2				4Q	1-4Q	1-3Q		
IWMDT -- System Development, Test, and Integration -- Version 4.0						1-4Q	1-4Q	1-4Q
NuCS -- Spiral 2 Development			1-4Q	1-4Q				
NuCS -- Spiral 3 Development					1-4Q	1-3Q		
NuCS -- Spiral 4 Development						3-4Q	1-4Q	1-4Q

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/RDT&E Management Support – BA6	**R-1 ITEM NOMENCLATURE:** Small Business Innovative Research; 0605502BR

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total 0605502BR Cost	**6.579**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
BB - Small Business Innovative Research	6.579	0.000	0.000	0.000	0.000	0.000	0.000	0.000
RA - Small Business Innovative Research	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

*In year of execution, funding is executed under PE 0605502BR "Small Business Innovative Research (SBIR)". In FY 2008, Project changes from BB to RA.

A. Mission Description and Budget Item Justification:

This project provides the means for stimulating technological innovation in the private sector, strengthens the role of small business in meeting DoD R&D needs; fosters and encourages participation of minority and disadvantaged businesses in technological innovation; and increases the commercial application of DoD supported R&D results. These efforts are responsive to Public Law 106-554.

B. Program Change Summary:

($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
Previous President's Budget	**5.318**	**0.000**	**0.000**	**0.000**
Current President's Budget	**6.579**	**0.000**	**0.000**	**0.000**
Total Adjustment	**1.261**	**0.000**	**0.000**	**0.000**
Congressional program reductions				
Congressional reductions				
Congressional increases				
Reprogramming				
SBIR/STTR Transfer	**1.261**			
Other program adjustments				

Exhibit R-2, RDT&E Budget Item Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/RDT&E Management Support – BA6	**R-1 ITEM NOMENCLATURE:** Small Business Innovative Research; 0605502BR

Change Summary Explanation:

- Funding for FY 2006 for the Small Business Innovative Research Program has been consolidated in this program element for execution**.**

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

D. Acquisition Strategy: Not Applicable.

E. Performance Metrics: Program cost, schedule and performance are measured using a systematic approach with approved programs and methods. The results of these measurements are presented to DTRA management on a regular basis to determine program effectiveness and to provide new direction as needed to ensure the efficient use of resources. Program specific performance metrics are outlined within each project description.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/RDT&E Management Support – BA6	**PROJECT NAME AND NUMBER:** 0605502BR Project BB – Small Business Innovative Research

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
BB - Small Business Innovative Research	6.579	0.000	0.000	0.000	0.000	0.000	0.000	0.000

* In year of execution, funding is executed under PE 0605502BR "Small Business Innovative Research (SBIR)".

A. Mission Description and Budget Item Justification:

This project provides the means for stimulating technological innovation in the private sector, strengthens the role of small business in meeting DoD R&D needs; fosters and encourages participation of minority and disadvantaged businesses in technological innovation; and increases the commercial application of DoD supported R&D results. These efforts are responsive to Public Law 106-554.

B. Accomplishments/Planned Program:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
BB - Small Business Innovative Research	6.579	0.000	0.000	0.000

*In year of execution, funding is executed under PE 0605502BR "Small Business Innovative Research (SBIR)".

Performance Metrics:

- Number of phase I awards supporting innovative technology development.
- Number of phase II and III awards leading to technology transition.

FY 2006 Accomplishments:

- Awarded 22 Phase I SBIR contracts to perform feasibility studies on FY 2005 topics.
- Awarded four Phase II SBIR contracts to perform full R&D on successful FY 2004 Phase I efforts in chemical/biological detection, neutron detection, and computational techniques supporting counterproliferation.
- Continued execution of FY 2004 Phase I and FY 2003 Phase II SBIR contract awards.

FY 2007 Plans:

- Not Applicable.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/RDT&E Management Support – BA6	**PROJECT NAME AND NUMBER:** 0605502BR Project BB – Small Business Innovative Research

FY 2008 Plans:

- Not Applicable.

FY 2009 Plans:

- Not Applicable.

C. Other Program Funding Summary: Not Applicable.

D. Acquisition Strategy: Not Applicable.

E. Major Performers: Not Applicable.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/RDT&E Management Support – BA6	**PROJECT NAME AND NUMBER:** 0605502BR Project RA – Small Business Innovative Research

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
RA - Small Business Innovative Research	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

* In year of execution, funding is executed under PE 0605502BR "Small Business Innovative Research (SBIR)". Project RA begins in FY 2008.

A. Mission Description and Budget Item Justification:

This project provides the means for stimulating technological innovation in the private sector, strengthens the role of small business in meeting DoD R&D needs; fosters and encourages participation of minority and disadvantaged businesses in technological innovation; and increases the commercial application of DoD supported R&D results. These efforts are responsive to Public Law 106-554.

B. Accomplishments/Planned Program:

Cost ($ in Millions)	FY 2006	FY 2007	FY 2008	FY 2009
RA - Small Business Innovative Research	0.000	0.000	0.000	0.000

*In year of execution, funding is executed under PE 0605502BR "Small Business Innovative Research (SBIR)".

Performance Metrics:

- Number of phase I awards supporting innovative technology development.
- Number of phase II and III awards leading to technology transition.

FY 2006 Accomplishments:

- Not Applicable. See Project BB.

FY 2007 Plans:

- Not Applicable.

FY 2008 Plans:

- Not Applicable.

Exhibit R-2a, RDT&E Project Justification	Date: February 2007
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/RDT&E Management Support – BA6	**PROJECT NAME AND NUMBER:** 0605502BR Project RA – Small Business Innovative Research

FY 2009 Plans:

- Not Applicable.

C. Other Program Funding Summary: Not Applicable.

D. Acquisition Strategy: Not Applicable.

E. Major Performers: Not Applicable.