Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Defense Threat Reduction Agency										DATE: February 2012	
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*				R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*							
COST ($ in Millions)	**FY 2011**	**FY 2012**	**FY 2013 Base**	**FY 2013 OCO**	**FY 2013 Total**	**FY 2014**	**FY 2015**	**FY 2016**	**FY 2017**	**Cost To Complete**	**Total Cost**
Total Program Element	301.571	283.073	275.022	-	275.022	280.713	283.738	290.132	296.378	Continuing	Continuing
RA: *Systems Engineering and Innovation*	4.815	13.641	7.455	-	7.455	8.448	9.215	9.771	9.946	Continuing	Continuing
RE: *Counter-Terrorism Technologies*	116.668	113.681	110.657	-	110.657	111.798	111.964	113.728	115.998	Continuing	Continuing
RF: *Detection Technology*	77.472	77.784	76.298	-	76.298	77.863	78.528	80.321	81.651	Continuing	Continuing
RG: *Advanced Energetics & Counter WMD Weapons*	18.273	15.186	20.682	-	20.682	21.540	21.780	22.487	23.212	Continuing	Continuing
RI: *Nuclear Survivability*	15.702	6.985	6.129	-	6.129	6.654	6.571	6.712	7.104	Continuing	Continuing
RL: *Nuclear & Radiological Effects*	2.661	-	-	-	-	-	-	-	-	Continuing	Continuing
RM: *WMD Battle Management*	29.143	22.303	22.503	-	22.503	22.527	22.937	23.700	24.328	Continuing	Continuing
RR: *Test Infrastructure*	1.790	-	-	-	-	-	-	-	-	Continuing	Continuing
RT: *Target Assessment Technologies*	35.047	33.493	31.298	-	31.298	31.883	32.743	33.413	34.139	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Proliferation, Prevention and Defeat program reduces Weapons of Mass Destruction (WMD) proliferation and enhances WMD defeat capabilities through advanced technology development. To accomplish this objective, seven project areas were developed: RA - Systems Engineering and Innovation, RE - Counter-Terrorism Technologies, RF - Detection Technology, RG - Counter WMD Weapons & Capabilities, RI - Nuclear Survivability, RM - WMD Battle Management, and RT - Target Assessment Technologies. This supports technology requirements in line with the Joint Functional Concepts (Chairman, Joint Chiefs of Staff Instruction 3170.01). The missions and plans of these projects are described below and in the R-2a Budget Exhibits.

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

Project RE provides research and development support to Joint U.S. Military Forces, specifically U.S. Special Operations Command (USSOCOM), in the areas of Explosive Ordnance Disposal Device Defeat; counter-WMD technologies for warfighters; the USSOCOM Combating Weapons of Mass Destruction – Terrorism Support Program (SCSP) ; and oversight of counterproliferation (CP) research and development resources sent directly to USSOCOM for warfighter-unique CP technologies.

Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Defense Threat Reduction Agency	DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*

Project RF develops technologies, systems and procedures for post-detonation nuclear forensics, and to detect, identify, track, tag, locate, monitor and interdict strategic and improvised nuclear and radiological weapons, components, or materials in support of Department of Defense (DoD) requirements for combating terrorism, counterproliferation and nonproliferation, homeland defense, and international initiatives and agreements.

Project RG develops advanced technologies and weapon concepts and validates 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. Related funding for this project can be found in the WMD Defeat Technologies: 0602718BR, budget exhibit.

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 Defense Threat Reduction Agency Experimentation Lab.

Project RR provides a unique national test bed capability for simulated Weapons of Mass Destruction (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 Department of Defense (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. Related funding for this project can be found in the WMD Defeat Technologies: 0602718BR, budget exhibit.

Project RT provides the Combatant Commands and the Intelligence Community with technologies and processes to find and characterize hard and deeply buried targets and then assess the results of attacks against those targets.

Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Defense Threat Reduction Agency	DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*

B. Program Change Summary ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
Previous President's Budget	295.163	283.073	278.100	-	278.100
Current President's Budget	301.571	283.073	275.022	-	275.022
Total Adjustments	6.408	-	-3.078	-	-3.078
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-11.950	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	25.200	-			
• SBIR/STTR Transfer	-5.026	-			
• FFRDC Reduction	-0.315	-	-	-	-
• Economic Assumption	-1.501	-	-	-	-
• Realignment	-	-	0.238	-	0.238
• Programmatic - Fiscal Guidance Reduction	-	-	-6.391	-	-6.391
• Inflation	-	-	3.075	-	3.075

Change Summary Explanation

The increase from the previous President's Budget submission in FY 2011 is the net effect of the Congressional Rescission, the $25.2M FY 11-21R Prior Approval reprogramming action in support of higher priority Department needs, the Federally Funded Research and Development Center (FFRDC)/Economic Assumption reductions, and the Small Business Innovative Research (SBIR) realignment. The decrease in FY 2013 from the previous President's Budget is predominately due to decreased investment for Counter WMD-Terrorism (CWMD-T) testing and defeat programs and the Counter-WMD Analysis Cell; and the realignment of Radiation Hardened (RadHard) Microelectronics and Information Operations Condition (INFOCON) 3 efforts from Program Element (PE) 0603160BR to PE 0602718BR to better reflect the nature of these programs.

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RA: *Systems Engineering and Innovation*	

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
RA: *Systems Engineering and Innovation*	4.815	13.641	7.455	-	7.455	8.448	9.215	9.771	9.946	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Systems Engineering and Innovation project provides (1) systems engineering and analysis support across all other Projects, (2) innovative counterproliferation research, and (3) technical advisory reachback support on Weapons of Mass Destruction (WMD) effects and consequences. The systems engineering effort provides research and development with requirements, technology, architecture analyses and proof-of-principle capability necessary for making decisions on strategic planning, research and development investments, new initiatives, cooperation, ventures with new customers, and accomplishment of high-level, short notice special projects. This includes analysis of National, Department of Defense (DoD) and other Federal agencies' strategic guidance and plans in the combating WMD, Combating Terrorism and Homeland Defense arenas through analytical political-military and technical studies, workshops and conferences. It also provides the Defense Threat Reduction Agency (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 U.S. European Command (USEUCOM), NATO, and SHAPE in combating WMD and maintaining the NATO nuclear deterrent. A significant element of this project includes support to Command Elements and the warfighting Combatant Commands (COCOMs) on strategies for reducing/countering the WMD threat in the COCOMs Areas of Responsibility. This project also provides for the solution to the Secretary of Defense mandate for DTRA to account, maintain, report, and track the National Nuclear Weapons Stockpile & Nuclear Weapon-Related Materiel during peacetime, crisis, and wartime. In support of national requirements necessary to maintain a viable nuclear deterrent, the Defense Integration and Management of Nuclear Data Services provide a platform to ensure continued sustainability and viability of the nuclear weapon stockpile.

The FY 2012 to FY 2013 decrease is predominately due to the net effect of a one time increased investment for the Arms Control Enterprise System (ACES) in FY 2012 and a realignment of funding from Program Element (PE) 0603160BR to PE 0602718BR for information technology test and engineering program for Information Operations Condition (INFOCON) 3.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
Title: RA: Systems Engineering and Innovation	4.815	13.641	7.455
Description: Project RA provides the research and development both for systems engineering and analysis support across all other projects and innovative counterproliferation research and technical reachback support. ***FY 2011 Accomplishments:*** - Continued to conduct strategic analyses and assessments on emerging WMD threats. - Continued to organize/conduct senior COCOM, Interagency, and International workshops, symposiums, and table top exercises to address key national/international strategies for reducing/combating the WMD threat. - Continued to refine and enhance WMD lessons learned process with international staff and across the other COCOMs, incorporating lessons learned from partner activities.			

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RA: *Systems Engineering and Innovation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Continued to develop and update the Defense Threat Reduction Agency (DTRA) Campaign Support Plan as directed in the Guidance for Employment of the Force (GEF) to further Combating WMD mission across all theaters while balancing DTRA assets and managing risks as prioritized within the GEF. - Utilized institutionalized linkage with NATO/SHAPE and USEUCOM in international research and development collaboration to further develop similar international research and development collaboration within the Pacific Region in accordance with the GEF. ***FY 2012 Plans:*** - Develop and innovate a Nuclear Weapon-Related Materiel (NWRM) module in Defense Integration and Management of Nuclear Data Services with the ability to evolve to keep up with emerging mainstream technologies to consolidate various DoD tracking systems into a single worldwide accountability system that provides the ability to account, maintain, report, and track NWRM during peacetime, crisis, and wartime. - Continue to organize/conduct senior COCOM, Interagency, and International workshops, symposiums, and table top exercises to address key national/international strategies for reducing/combating the WMD threat. - Continue to refine and enhance WMD lessons learned process with international staff and across the other COCOMs, incorporating lessons learned from partner activities. - Continue to develop and update DTRA Support Plan as directed in the GEF to further Combating WMD mission across all theaters while balancing DTRA assets and managing risks as prioritized within the GEF. - Continue to utilize institutionalized linkage with NATO/SHAPE and USEUCOM in international research and development collaboration to further develop similar international research and development collaboration within the Pacific Region in accordance with the GEF. - Continue to conduct strategic analyses and assessments on emerging WMD threats. - Increase the capacity of Technical Reachback through the development and integration of high performance computing and geospatial services for decision support – support projected workload of over 1,800 requests for information. - Building partner capacity through advanced technology demonstrations to increase the technical capacity of international partners. - Develop, test, and deploy Arms Control Enterprise System (ACES) New START Treaty (NST) Increment #2 mid FY12 providing production facility, weapon transfer, annual nuclear weapons platform Conversion or Elimination plans and flight route notification capability - Develop, test, and deploy ACES NST Increment #3 end FY12 providing prototypes, new equipment, demonstrations and telemetry notification capability. Increment #3 will be at full operational capability (FOC) of ACES NST software upgrade. - Begin development and integration of agent based modeling capabilities, including network dynamics and propagation of infectious disease, with computation time in minutes instead of hours supporting Near Real Time Reachback. ***FY 2013 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RA: *Systems Engineering and Innovation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Complete initial development and integration phase of agent based modeling capabilities with computation time in minutes instead of hours. - Conduct Near Real Time Reachback demonstration with nuclear and biological scenarios; demonstrate capability to model selected secondary and tertiary effects and impact of certain courses of action.			
Accomplishments/Planned Programs Subtotals	4.815	13.641	7.455

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• 23/0602718BR: *WMD Defeat Technologies*	44.923	41.456	33.396		33.396	31.924	32.454	32.780	33.152	Continuing	Continuing

D. Acquisition Strategy

Not Applicable

E. 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 Defense Threat Reduction Agency (DTRA) Security Cooperation Plans for all regional Combatant Commands (COCOMs).

Development of a DTRA gap analysis of Combating Weapons of Mass Destruction (CWMD) mission vice Homeland Defense and Combating Terrorism mission areas to provide way ahead for DTRA operational and research and development planning.

Robust lessons learned process that incorporates new, workable operational and technical solutions into DoD and with allies.

Incorporation of at least three new technologies by FY 2013 as a result of International research and development collaboration.

Number of strategic analyses and assessments conducted on emerging WMD threats.

Number of senior Combatant Commands (COCOMs), Interagency and/or International Workshops/Conferences organized/conducted to address national/international strategies for reducing the WMD threat.

Manage the strategic weapons stockpile and Nuclear Weapon-Related Materiel; maintain 100% accountability.

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	**R-1 ITEM NOMENCLATURE** PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	**PROJECT** RA: *Systems Engineering and Innovation*

Support the Office of Secretary of Defense, Joint Staff, Combatant Commands, Services, Nuclear Weapon Custodial Units, and Department of Energy.

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RE: *Counter-Terrorism Technologies*	

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
RE: *Counter-Terrorism Technologies*	116.668	113.681	110.657	-	110.657	111.798	111.964	113.728	115.998	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Counter-Terrorism Technologies project is an over-arching project that develops and transitions a full spectrum of new technologies to counter emergent Weapons of Mass Destruction (WMD) thus enabling warfighters to improve their ability to detect, disable, interdict, neutralize, and destroy chemical, biological, nuclear production, storage, and weaponization facilities. This project supports Joint U.S. Military Forces, and in particular, the U.S. Special Operations Command (USSOCOM). This research and development support to USSOCOM is one of the highest priority mission areas in the National Security Strategy, the National Strategy to Combat WMD, the National Military Strategy to Combat WMD, the National Strategy for Countering Biological Threats, the Quadrennial Defense Review, and the Guidance on the Employment of the Force, and therefore a top priority for the Defense Threat Reduction Agency (DTRA). The following efforts are included in this project:

Provide oversight for Counterproliferation (CP) research and development resources sent directly to USSOCOM that are used to develop warfighter-unique technologies in support of USSOCOM's Counterterrorism and Counterproliferation (CT/CP) mission. New CT/CP technologies are developed under USSOCOM management that provides warfighters with the operational capability to counter WMD threats.

The Explosive Ordnance Disposal (EOD) Device Defeat effort develops innovative technologies, energetic materials, and software programs to identify, defeat, contain, and mitigate WMD capable Improvised Explosive Devices (IEDs). DTRA has been delegated the responsibilities and the authority to act as Task Lead on behalf of the Department of Defense (DoD) to provide leadership, integration, development, and testing as the primary U.S. Government coordinator for the National Implementation Plan WMD-Terrorism Task 5.4.4. The EOD Device Defeat effort adds targeted rapid development of tools, techniques, and procedures for the access and advanced diagnostics and defeat of WMD systems and IEDs. The focus of the activity is prototype development and transition of promising technologies to the warfighters for procurement.

The USSOCOM Combating Weapons of Mass Destruction – Terrorism Support Program (SCSP) addresses Commander USSOCOM responsibilities under the Chairman, Joint Chiefs of Staff (CJCS) Unified Command Plan (UCP) for integrating and synchronizing Defense-wide operations and activities to prevent terrorists from developing, acquiring, proliferating, or using WMD.

The Counter WMD-Terrorism (CWMD-T) technologies program builds upon collaborative efforts with the warfighter. One portion of this program involves a proof of concept and subsequent advancements in research, development, testing, and evaluation (RDT&E) and provides multi-mission capabilities that may be applied throughout the entire spectrum of warfare while significantly eliminating collateral damage. The CWMD-T technologies program is developing technologies to enable the warfighter to locate, identify, characterize, and access WMDs, their production and storage facilities, and associated enablers along multiple nodes concurrently or simultaneously within the terrorist pathway to disrupt, delay, degrade, destroy, or deny Chemical, Biological, Radiological and Nuclear (CBRN) WMDs while minimizing risk to U.S. forces in support of CT/CP offensive operations.

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RE: *Counter-Terrorism Technologies*

The decrease from FY 2012 to FY 2013 is predominately due to decreased investment for CWMD-T testing and defeat programs.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
Title: RE: Counter-Terrorism Technologies	116.668	113.681	110.657

Description: Project RE provides research and development support to Joint U.S. Military Forces, specifically U.S. Special Operations Command (USSOCOM), in the areas of Explosive Ordnance Disposal Device Defeat; counter-WMD technologies for warfighters; the USSOCOM Combating Weapons of Mass Destruction – Terrorism Support Program (SCSP) ; and oversight of counterproliferation (CP) research and development resources sent directly to USSOCOM for warfighter-unique CP technologies.

FY 2011 Accomplishments:
- Continued development and transitioned new counterproliferation (CP) technologies for Joint U.S. Military Forces to counter WMD, enabling warfighters to improve their ability to detect, disable, interdict, neutralize, and destroy chemical, biological, and nuclear production, storage, and weaponization facilities. Some of these efforts used innovative technologies utilizing energetic, mechanical, and alternative energies to improve the efficiencies and effectiveness of joint U.S. military ground forces' offensive operations against Chemical, Biological, Radiological, Nuclear, and Explosive (CBRNE) WMD production facilities.
- Successfully conducted approximately 150 joint tests with military utility assessments against Ultra High Performance Concrete (UHPC) to improve tactics, techniques, and procedures.
- Proceeded in multi-year classified development effort to deliver tools to enable the warfighter to combat against WMDs, their production and storage facilities, and associated enablers anywhere within the terrorist pathway.
- Achieved successful progress per plan for successive multi-year efforts to develop high fidelity test articles for EOD Device Defeat program.
- Designed and built eight new Test Objects for characterization and testing to counter emergent threats.
- SCSP established an initial capability to provide a dynamic picture of the global WMD-T operating environment.
- SCSP established an initial advanced IT infrastructure (Phase I).
- SCSP provided WMD data to COCOMs to support real-time contingency planning.
- Developed technologies and tools to characterize and identify the electronic environment and any improvised electronic fusing systems.
- Developed barrier defeat tools that enhance defeat solutions to defeat a variety of WMD barriers (perimeter, external, internal) using a range of defeating techniques, equipment, and material.
- Developed production defeat tools that enable ground forces to destroy "critical nodes" used in the production and support of WMD.
- Provided structural defeat tools for the destruction of structures' key entry points to collapse the structure or render it unusable.

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RE: *Counter-Terrorism Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Proceeded with a 48-month classified development effort to deliver tools to enable the warfighter to combat against WMDs, their production and storage facilities, and associated enablers anywhere within the terrorist pathway. Each year of this program a new 4-year effort will begin, so at the end of 4 years solutions will be delivered each year thereafter. - Continued work on Knowledge Management Objectives begun in FY10; continue to test the effects of RF signals on test objects and initiate a study of the effects of Radio Frequency (RF) signals on explosives. - Initiated multi-year program to design and produce ultra-high fidelity test articles. ***FY 2012 Plans:*** - Continue development and then transition new technologies for Joint U.S. Military Forces to counter WMD, enabling warfighters, specifically SOF, to improve their ability to detect, disable, interdict, neutralize, and destroy chemical, biological, and nuclear production, storage, and weaponization facilities. These efforts use innovative technologies utilizing energetic, mechanical and alternative energies to improve the efficiencies and effectiveness of Joint U.S. Military Ground Force's offensive operations against CBRNE WMD production facilities. - Develop and transition innovative counter-WMD tools designed to locate, identify, characterize, assess and attack WMD production and storage facilities with minimal to no collateral damage or loss of life. - Continue funding three 48-month technology solutions that began in FY10 and manage their progress in countering the proliferation of WMD. - SCSP will reach Full Operational Capability (FOC) and continue to support COCOM planning efforts related to CWMD-T. - Develop systemic operational plans for integrating diplomatic, military, economic, financial, intelligence and law enforcement to counter proliferation of WMD and acquisition by known terrorist organizations. - Begin development of next generation imaging capabilities to allow EOD forces advanced diagnostic capabilities. - Continue work on Knowledge Management Objectives begun in FY10; continue to test the effects of RF signals on test objects and initiate a study of the effects of Radio Frequency (RF) signals on explosives. ***FY 2013 Plans:*** - Continue other planned development and transition of new CP technologies for Joint U.S. Military Forces to counter WMD, enabling warfighters to improve their ability to detect, disable, interdict, neutralize, and destroy chemical, biological, and nuclear production, storage, and weaponization facilities. - Continue work on successive multi-year efforts to develop high fidelity test articles for EOD Device Defeat program. - Build EOD Device Defeat test objects for characterization and testing. - Continue work on Knowledge Management Objectives begun in FY10; continue to test the effects of RF signals on test objects and initiate a study of the effects of Radio Frequency (RF) signals on explosives. - Sustain the CWMD-T global dynamic picture of the operating environment for use by the DoD and USG Community of Interest. - Continue to support COCOM planning efforts related to CWMD-T.			

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RE: *Counter-Terrorism Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Establish a collaborative virtual workspace (linked to dynamic SCSP data sets/feeds) that enables CWMD-T planning by geographically separated COCOMs.			
Accomplishments/Planned Programs Subtotals	116.668	113.681	110.657

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• 23/0602718BR: *WMD Defeat Technologies*	15.946	0.000	0.000		0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

Number of technologies developed and delivered, and/or proof of concept, or successful Military Utility Assessments conducted that increase the potential mission success and reduces the number of current gaps in SOF capabilities to counter weapons of mass destruction when conducting Overseas Contingency Operations.

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RF: *Detection Technology*	

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
RF: *Detection Technology*	77.472	77.784	76.298	-	76.298	77.863	78.528	80.321	81.651	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Detection Technology project develops technologies, systems and procedures to detect, identify, track, locate, monitor and interdict strategic and improvised nuclear and radiological weapons, components, or materials in support of Department of Defense requirements for combating terrorism, counterproliferation and nonproliferation, homeland defense, and international initiatives and agreements. This project researches, develops, demonstrates, and transitions advanced technologies to improve: operational capability to detect and identify nuclear and radiological weapons; and to support the attribution process through development, demonstration, and transition of improved post-detonation National Technical Nuclear Forensics (NTNF) capabilities. 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.

In FY11, the treaty and verification technology program was launched as a component of the detection technology project. This program develops technology to support nuclear arms reductions treaties and agreements, nuclear test monitoring, and on-site inspection.

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

The decrease from FY 2012 to FY 2013 represents an efficiency reduction to contract support services as part of the DOD reform agenda to reduce reliance on service support contractors.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
Title: RF: Detection Technology	77.472	77.784	76.298
Description: Project RF develops technologies, systems and procedures for post-detonation nuclear forensics, and to detect, identify, track, tag, locate, monitor and interdict strategic and improvised nuclear and radiological weapons, components, or materials in support of Department of Defense (DoD) requirements for combating terrorism, counterproliferation and nonproliferation, homeland defense, and international initiatives and agreements.			
FY 2011 Accomplishments: - Continued development of a fieldable standoff active interrogation system for standoff detection and warning of hidden and shielded nuclear material. - Performed field demonstrations of new detector technologies for handheld detectors to improve the ability of fielded forces to detect, locate, and identify nuclear materials in the battle space.			

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RF: *Detection Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Improved performance of new detector materials, imaging and spectroscopy systems, and signals analysis methods through rigorous field testing. - Continued expanding the functionality of the Mobile Field Kit – Radiological (MFK-R) by increasing radiological situational awareness and mission review to current and future suites of sensors. - Continued transitioning multiple near term technologies to generate prototypes and design packages to assist operational users. - Continued to develop fieldable and improved technical capabilities for post-detonation prompt and debris sample collection, sample analysis, modeling to support nuclear device reconstruction, and forensics data to lower uncertainties/increase confidence in technical nuclear forensics (TNF) conclusions. - Combined all research and development prompt diagnostics projects under DISCREET OCULUS and MINIKIN ECHO to demonstrate and field prototypes of an integrated ground sensor capability to augment and enhance current yield estimation and other prompt diagnostic capabilities. Includes continued development of methods to rapidly determine nuclear weapon yields and reaction history post-event. Continued development, validation and transition of seismic/air blast/infrasound/craterology model to improve yield accuracy. - Continued execution, technical management and development of yield estimation and airborne/ground debris collection capabilities in support of the FY2010-initiated National Technical Nuclear Forensics (NTNF) Joint Capability Technology Demonstration (JCTD). - Began development of fieldable (integrated and deployable) enhanced/rapid separation, dissolution and analysis laboratory capabilities and prototype novel technologies to shorten the analysis and overall TNF process timeline. - Continued to develop improved correlation tools, signature databases, and modeling of device/production design space to increase confidence, decrease uncertainties and timelines, to better support production of consensus technical forensics results. Fielded improved debris diagnostic codes; accelerate design signatures database development and base lining of weapon design analysis capability. - Continued robotic post-detonation ground debris sample collection improvements. Began development of enhanced autonomous/semi-autonomous collection capabilities as well as initiated a study to determine the benefits and feasibility of Maritime Domain debris sample collection capability. - Provided enhanced technical support and analysis to the Nuclear Weapons Council and Nuclear Weapons Council Standing and Safety Committee and other high-level committees and senior decision-makers to transform the nuclear stockpile and infrastructure. - Investigated alternative methods to detect fissions in nuclear materials from standoff ranges. - Started development of methods to rapidly determine nuclear weapon yields post-event, by investigating alternative prompt nuclear weapons effects on the environment. - Continued development, validation and transition of a seismic/air blast model to improve yield accuracy. - Continued development of contour mapping technology prototype for radiation field analysis.			

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RF: *Detection Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Continued Concept of Operations development & Standard Operating Procedures development for more complex Outside the Continental United States (OCONUS) demonstrations for detection, and collection capabilities. - Continued cooperation and acceptance of DTRA developed detection technologies for improved operational capability. - Continued transitioning multiple near term technologies to generate prototypes and design packages to provide ground forces improved capability. - Continued development and testing of remote information awareness capability for radiation sensor systems and data integration for increased area of detection capability. - Investigated capability gaps and opportunities for insertion of technology for treaty monitoring and verification. - Developed and conducted laboratory and field experiments to understand the seismic effects of device de-coupling for underground nuclear tests in various types of geology. - Began to develop a manufacturing capability for boron and lithium based replacements to helium based neutron detectors to address He-3 shortage. . - Completed successful maritime demonstration of neutron sensitive panel detector. - Completed laboratory testing of cadmium zinc telluride (CZT) -based Compton imaging spectrometer, allowing progress toward a fieldable prototype. - Demonstrated the ability to scale up the production of novel and high efficient material critical for use in nuclear detectors for national security applications ensuring ability to deliver future capabilities. - Transitioned a state of the art technology to complete procurement for the Army Dosimeters, to replace aging technology with improved capability. - Completed Spiral One of the Arms Control Enterprise System which enabled efficient and timely compliance with the notification requirements of the New START Treaty. - Began the Arms Control Enterprise System Analysis of Alternatives which will provide a flexible and affordable software approach to data bases and notifications for future treaties. - In partnership with NNSA, conducted the first Source Physics Experiment to examine signatures from evasive and low yield nuclear testing which provided an improved capability to detect underground nuclear weapons testing. - Conducted a workshop with Department of State (DOS) on Technology Development for Strategic Arms Reductions which provided a technology roadmap to support future treaties. - Continued to evaluate ship search prototypes in support of CWMD maritime search operations. - Completed directional man-portable radiation sensor prototype for CWMD Urban Search Operations. ***FY 2012 Plans:*** - Continue design and fabrication of a prototype passive interrogation system for determining the location and signature of nuclear material.			

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RF: *Detection Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Continue development of a rugged, mobile stand-off radiation detection system to provide mid to long-range detection and identification of nuclear materials in a field environment. - Complete development and testing of a small, light-weight, low-cost, and low-power real-time secondary dosimeter to provide a single design for the Navy, Army, and Air Force. Continue development on a real-time primary dosimeter providing beta, gamma, and neutron sensitivity. - Continue to develop and demonstrate alternative neutron detection technologies for replacement of helium-3 neutron detectors. - Continue developing and improving high performing microelectronics to determine the location of a radiological source. - Continue to develop, test, verify, assist with validation, and use additions to the Joint Semi-Automated Forces (JSAF) tool intended to provide nuclear detection simulation capability into the JSAF environment, an integrated, accurate, environment where the Concept of Operations (CONOPS) and physics of nuclear detection can be studied in tandem. - Continue to develop, accelerate development where appropriate, demonstrate, and field (prototype) upgraded technical capabilities for prompt diagnostics (under DISCREET OCULUS and MINIKIN ECHO) and debris sample collection, sample analysis, and integration of design modeling and forensic data to support development of technical conclusions. - Continue development of fieldable (integrated and deployable) enhanced/rapid separation, dissolution and analysis laboratory capabilities and prototype novel technologies to shorten the analysis timeline. - Continue development of methods to rapidly determine post-event nuclear weapon yields by investigating alternative prompt nuclear weapons effects, effects on the environment, and developing/fielding prototype capabilities. - Complete execution of the National Technical Nuclear Forensics (NTNF) Joint Capability Technology Demonstration (JCTD) and begin Limited Operational Use / Employment and Follow-on Sustainment activities. - Continue robotic air/ground sample collection improvements; complete development and prototype fielding of enhanced semi-autonomous ground and airborne debris collection capabilities in conjunction with completion of the NTNF JCTD. - Continue development of a fieldable standoff active interrogation system for standoff detection and warning of hidden and shielded nuclear material. - Continue to perform field demonstrations of new detector technologies for handheld detectors, distributed sensors, and vehicle mountable detector systems, to improve the ability of fielded forces to detect, locate, and identify nuclear materials in the battle space. - Continue to improve performance of new detector materials, imaging and spectroscopy systems, and signals analysis methods through rigorous laboratory and field testing. - Continue expanding the functionality of the Mobile Field Kit – Radiological (MFK-R) by increasing radiological situational awareness and mission review to current and future suites of sensors. - Investigate capability gaps and opportunities for insertion of radiation detection technology for treaty monitoring and verification. - Continue transitioning multiple near term technologies to generate prototypes and design packages to assist operational users. - Standoff Operational Exercise (SOX) Range will continue to support standoff experiments with the Photonuclear Inspection and Threat Analysis System (PITAS), a Bremsstrahlung beam generating system.			

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RF: *Detection Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Establish the Integrated Standoff Inspection System (ISIS) as an Advanced Technology Demonstration. - Continue development of a large standoff, directionally oriented, monoenergetic gamma (e.g. laser Wakefield/inverse Compton scattering accelerator) source for integration with an active interrogation system. - Begin systems engineering approach for integration of technologies needed to enhance verification and monitoring of the follow-on to the New Strategic Arms Reduction Treaty (START). - Demonstrate Spiral I of the Arms Control Enterprise System (ACES) that enhances the database for strategic bomber movements and inspection operations. - Complete Spiral II of ACES that addresses production facilities and weapons transfers. - Complete Phase I near source strong motion-small scale tests and high fidelity analysis for detection and identification of low yield and evasive testing. - Complete the Analysis of Alternatives for the Arms Control Enterprise System. - Initiate Phase I near source strong motion-small scale tests and high fidelity to address detection of deliberate evasive testing. - Conduct laboratory experiments with lasers to assess shock/seismic and electromagnetic signatures from underground nuclear tests. - Begin exploring technologies for man portable detection and analysis capability for the Fissile Material Cutoff Treaty. - Demonstrate field portable gamma ray and neutron detection system for New and Future START warhead counting and identification. - Start experimental assessment of advanced concepts for warhead counting and assessment for Future START. - Initiate upgrade analysis system for radioactive noble gases to detect underground nuclear explosions for CTBT. - Complete operational characterization of the imaging and high spectral resolution systems for man portable, vehicle borne and stationary radiological detectors. - Begin development of the next generation NIMBLE ELDER network technologies. - Begin operational characterization of the emerging radiological active detection prototypes. - Continue development of the Force protection improvement for NIMBLE ELDER detection equipment. - Continue development of NIMBLE ELDER maritime detection capabilities. - Continue cooperation and acceptance of DTRA developed detection technologies for operational development. - Conduct NIMBLE ELDER evaluation exercises assessing radiological/nuclear detection technology at the Technology Readiness Level (TRL) 3, 4, 5 and 6 levels of development against the approved NIMBLE ELDER capability gaps. - Begin transitioning ground robotic sample collection capability to a program of record. - Continue testing and evaluation nuclear forensics sample collection procedures through demonstrations and exercises. - Conduct a “track 2” dialog between the US National Academy of Sciences and the Russian Academy of Sciences on transparency measures for arms control.			

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RF: *Detection Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Conduct an investigation of technology needs and international partnerships opportunities for technology development for a Future Multilateral START treaty. ***FY 2013 Plans:*** - Continue design and fabrication of prototype passive detection systems for determining the location and signature of nuclear material; test and characterize developmental prototype passive detection systems. . - Continue to develop and demonstrate alternative neutron detection technologies for replacement of helium-3 neutron detectors. - Continue to test, verify, assist with validation, and use additions to the Joint Semi-Automated Forces (JSAF) tool intended to provide nuclear detection simulation capability into the JSAF environment, an integrated, accurate, environment where the Concept of Operations (CONOPS) and physics of nuclear detection can be studied in tandem. - Continue to perform field demonstrations of new detector technologies for handheld detectors, distributed sensors, and vehicle mountable detector systems, to improve the ability of fielded forces to detect, locate, and identify nuclear materials in the battle space. - Continue development of a large standoff, directionally oriented, monoenergetic gamma (e.g. laser Wakefield/inverse Compton scattering accelerator) source for integration with an active interrogation system. - Begin to exploit all-source nuclear threat signatures and characteristics to improve probability of nuclear threat detection and reduce the occurrence of false alarms. - Continue to develop, accelerate development where appropriate, demonstrate, and field (prototype) upgraded technical capabilities for post-detonation prompt diagnostics (under DISCREET OCULUS and MINIKIN ECHO) and debris sample collection, sample analysis, modeling to support nuclear device reconstruction, and forensics data to lower uncertainties/increase confidence in technical nuclear forensics (TNF) conclusions. This includes development of new debris collection and field analysis concepts and supporting technologies that take advantage of higher activity level samples and the ability to collect/analyze short-lived isotopes to significantly shorten the timeline from weeks to days. - Continue development of methods to rapidly determine post-event nuclear weapon yields and reaction history by investigating alternative prompt nuclear weapons effects, effects on the environment, and developing/fielding prototype capabilities. - Continue to improve performance of new detector materials, imaging and spectroscopy systems, and signals analysis methods through rigorous laboratory and field testing. - Continue expanding the functionality of the Mobile Field Kit – Radiological (MFK-R) by increasing radiological situational awareness and mission review to current and future suites of sensors. - Continue transitioning multiple near term technologies to generate prototypes and design packages to assist operational users. - Demonstrate Spiral 3 of the Arms Control Enterprise System (ACES) that addresses Prototypes, new equipment, demos, telemetry - Complete the software operations manual for ACES to enable transition to a new O&M maintenance contract. - Develop a prototype for a future generation ACES system based on the analysis of alternatives.			

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RF: *Detection Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Conduct a warhead imaging demonstration at an NNSA nuclear weapons facility. - Conduct a field demonstration of production signatures for the fissile material cutoff treaty. - Demonstrate the ability to simulate Underground Test (UGT) Electromagnetic Pulse (EMP) signatures in a field experiment in partnership with NNSA. - Continue development of the next generation NIMBLE ELDER network technologies. - Continue operational characterization of the emerging radiological active detection prototypes. - Continue development of the Force protection improvement for NIMBLE ELDER detection equipment. - Continue development of NIMBLE ELDER maritime detection capabilities. - Conduct NIMBLE ELDER evaluation exercises assessing R/N detection technology at the TRL 3, 4, 5, & 6 levels of development against the approved NIMBLE ELDER capability gaps. - Accelerate the development of non-radiological detection S&T projects.			
Accomplishments/Planned Programs Subtotals	77.472	77.784	76.298

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• 23/0602718BR: *WMD Defeat Technologies*	43.697	49.677	44.998		44.998	47.223	47.722	48.417	49.330	Continuing	Continuing

D. Acquisition Strategy

Continue to implement the approved CWMD SEARCH Modernization Strategy for the transition of S&T projects to DOD programs of record at the Milestone A decision for rapid capability fielding.

E. Performance Metrics

Conduct/support end-to-end National Technical Nuclear Forensics capabilities exercise and supporting demonstration(s).

Successfully develop data integration capability with future interagency comprehensive, all domain weapons of mass destruction detection architecture.

Continue to develop upgraded technologies for sample collection, sample analysis, and data analysis; develop plan for faster diagnostics based on technology demonstrations; formulate program direction for advanced forensic sampling concepts.

Successful operational development and acceptance of transitional detection technologies.

Successful testing of the prototype components of a large area gamma detection system.

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	**R-1 ITEM NOMENCLATURE** PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	**PROJECT** RF: *Detection Technology*

Transition of next-generation detection systems.

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RG: *Advanced Energetics & Counter WMD Weapons*	

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
RG: *Advanced Energetics & Counter WMD Weapons*	18.273	15.186	20.682	-	20.682	21.540	21.780	22.487	23.212	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Counter Weapon of Mass Destruction Hard Target Defeat (CWMD HTD) Weapons Development project develops, matures, and demonstrates innovative kinetic and non-kinetic weapon capability for the physical or functional defeat of WMD agents, processes, and support networks with a minimum of collateral effects from incidental release of agent. This is directly linked to the 2010 Quadrennial Defense Review (QDR) priority objectives to prevent and deter conflict and prepare to defeat adversaries and succeed in a wide range of contingencies, and the key missions of deter and defeat aggression in anti-access environments; and prevent proliferation and counter weapons of mass destruction. It does so through the systematic identification and maturation of advanced technologies capable of defeating WMD agents or agent based processes, then integrating those technologies into the weapons and delivery systems most relevant to the COCOMs' WMD Defeat CONOPS for their AOR. The primary focus of current efforts is defeating an adversary's WMD capability protected in the confines of hardened and protected bunker and tunnel facilities. Included in this program is the development of offensive defeat capabilities, WMD agent/agent-based process simulants, test infrastructure, and sampling capability required for effective development, testing, and evaluation of the next generation capability as well as the advanced modeling and simulation necessary for ensuring optimum weapon solutions are achieved based on this technology. The program addresses requirements delineated in the QDR and Strategic Planning Guidance as codified in Joint Capability Integrated Development (JCID) documents, Service requirements documents, and COCOMs and Agency Priority Lists for lethal and non-lethal C-WMD capability. The efforts contained in the program further develop, mature, and demonstrate technology and weapon system concepts that greatly enhance the warfighters' capability to defeat the spectrum of weapons of mass destruction (WMD) in hard and deeply buried targets (HDBTs) and elsewhere throughout the lifecycle functions from production to weaponization, storage, and employment.

The program's investment approach is based on a strategic top-down analysis of threat vulnerabilities and aligned with stated organizational core competencies and lines of operations aimed at the defeat of (1) the chemical, biological, radiological, and nuclear (CBRN) threat materials, (2) the ability to deliver the same, and (3) the support networks, both physical and non-physical, enabling both. The program places a high priority on understanding, characterizing, and validating potential weapon effects within some mathematical confidence as it relates to the unintended release of hazardous threat materials. Our end-state is to provide COCOMs with accurate and timely WMD defeat expertise, tailored technologies, and customized solutions that provide offensive weapons and capabilities to combat WMD in any target while mitigating collateral contamination effects. Without these capabilities our nation cannot effectively hold at risk our adversaries' WMD capabilities thus giving them strategic advantage.

The increase from FY 2012 to FY 2013 is predominately due to increased investment in Counter WMD Hard Target Defeat Weapons Development to mature and demonstrate innovative kinetic and non-kinetic weapon capability for the physical or functional defeat of the WMD structures, functions, and/or the agents themselves with a minimum of collateral effects from incidental release of agent.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
Title: RG: Advanced Energetics & Counter WMD Weapons	18.273	15.186	20.682

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RG: *Advanced Energetics & Counter WMD Weapons*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013

Description: Project RG develops advanced technologies and weapon concepts and validates their applicability as counter WMD weapon systems.

FY 2011 Accomplishments:
- Completed Integrated Precision Ordnance Delivery System (IPODS) Phase I Concept Refinement and continued Air Force Research Laboratory (AFRL) laser radar seeker technology risk reduction testing for IPODS.
- Evaluated IPODS proposals for tunnel defeat, selected contractors, and initiated Phase II: Preliminary Development and Component Test.
- Completed IPODS Phase IIA: Interim Design Review with both contractors.

- Continued work on improving the ability of computer models that show weapons effects so that the WMD agent defeat characteristics are built into those models; added other capabilities into these weapons effects models, such as weapons systems that destroy WMD by means other than detonation.
- Initiated research and development of a capability that will allow the U.S. to attack WMD in 'soft' targets like surface structures, while minimizing the spread of contamination.
- Finalized Modular Autonomous Countering WMD System (MACS) Concept Development Studies and initiated technology maturation efforts for complex tunnel defeat.
- Advanced the development of a diagnostic tool that improves upon the ability to measure the effects of new weapons that defeat WMD.
- Demonstrated MACS critical component technologies in preparation for component and system integration and testing/ demonstrations.
- Conducted small-scale tests and used the data to improve computer models of weapons that destroy WMD by exploding or by some other means.
- Continued development of weapons payloads that are capable of destroying large amounts of WMD chemical and biological agent.
- Refined an advanced wireless sensor for use in Counter-WMD weapons tests to better help understanding of explosive environments, which will allow improved weapons development and testing.
- Conducted full-scale test to investigate the effects that high-explosive counter-WMD weapons have on the equipment used to make WMD agents in order to better understand and develop weapons to use against WMD production sites.
- Completed work on investigating the damage effects that high-powered microwaves have on electronics in order to guide further research and development of high-powered microwave weapons that can be used against WMD process equipment.
- Conducted Counter Electronics High Power Microwave Advanced Missile Project (CHAMP) Joint Concept Technology Demonstration (JCTD) ground effects testing against representative WMD production equipment.

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RG: *Advanced Energetics & Counter WMD Weapons*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Provided support to the Air Force Massive Ordnance Penetrator (MOP) Quick Reaction Capability (QRC) efforts. ***FY 2012 Plans:*** - Develop IPODS preliminary Hardware Design and Software Architecture Design. - Continue work on improving the ability of computer models that show weapons effects so that the WMD agent defeat characteristics are built into those models. - Conduct computerized fit checks on F-15E, B-52, and B-2 aircraft carriage platforms and perform scale model IPODS wind tunnel testing. - Examine alternate payload candidates for potential integration into IPODS baseline design. - Further advance the development of a diagnostic tool that improves upon the ability to measure the effects of new weapons that defeat WMD. - Initiate development of MACS system and concept of operation architecture. - Begin development of a capability that will allow the US to attack WMD in 'soft' targets like surface structures, while minimizing the spread of contamination. - Develop initial MACS prototype to demonstrate design concepts will meet requirements. - Integrate Kinetic Fireball sub-munitions into warhead. - Conduct High Power Microwave disruption and forensics testing. - Complete Counter Electronics High Power Microwave Advanced Missile Project (CHAMP) Joint Concept Technology Demonstration (JCTD) Operational Utility Assessment against a WMD target. ***FY 2013 Plans:*** - Continue improvements for defeat of WMD in soft targets. - Continue maturing diagnostic capability to meet emerging needs and field improved capabilities for Agent Defeat. - Complete Heated And Mobile Munitions Employing Rockets (HAMMER) Advanced Technology Demonstration (ATD) weapon design, critical component testing, and payload subscale bio defeat tests - Conduct MACS Underground Communication proof-of-principle demonstration in a realistic environment. - Complete IPODS Phase II Preliminary Design. - Initiate IPODS Phase III, Detailed Development & System Level Test. - Issue MACS Phase III First Generation System Concept Request for Proposal.			
Accomplishments/Planned Programs Subtotals	18.273	15.186	20.682

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RG: *Advanced Energetics & Counter WMD Weapons*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• 23/0602718BR: *WMD Defeat Technologies*	18.432	17.771	14.645		14.645	14.750	13.595	13.521	14.004	Continuing	Continuing

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

Evaluate weapon system component technologies required for development of at least one new capability to counter WMD in tunnels during the FYDP to TRL 4/5.

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RI: *Nuclear Survivability*	

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
RI: *Nuclear Survivability*	15.702	6.985	6.129	-	6.129	6.654	6.571	6.712	7.104	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Nuclear Survivability project develops and demonstrates Radiation Hardened Microelectronics (RHM) for nuclear hardening and survivability of Department of Defense's (DoD) systems 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 RHM and photonics technology to support mission needs. This program develops and demonstrates radiation-hardened, high performance prototype microelectronics to support the availability of RHM and photonics for DoD missions from both private sector and government organizations.

Mighty Guardian Force-on-Force Tests aid in satisfying requirements for the Services by providing denial of access to nuclear resources 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 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 (COCOMs), 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 COCOMs and Services.

The decrease from FY 2012 to FY 2013 represents an efficiency reduction to contract support services as part of the DOD reform agenda to reduce reliance on service support contractors.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
Title: RI: Nuclear Survivability	15.702	6.985	6.129
Description: 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.			
FY 2011 Accomplishments: - Initiated 90nm Application Specific Integrated Circuit (ASIC) design process to qualify for recognized usage.			

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RI: *Nuclear Survivability*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Developed initial Technology Computer-Aided Design modeling for 45nm. - Conducted Mighty Guardian XIV Force-On-Force test to evaluate nuclear security policy as it applies to bomber generation at Whiteman AFB, MO. - Initiated planning for Mighty Guardian XV Force-on-Force test to evaluate nuclear security policy for waterfront restricted areas at Naval Base Kings Bay, GA. - Conducted research, development, test, and evaluation on physical security technologies designed to enhance protection of the nuclear stockpile as determined by the Services. ***FY 2012 Plans:*** - Develop 90nm Radiation Hardening By Design (RHBD) qualification vehicle for ASIC design flow capability. - Continue investigation of 45nm RHBD mitigation techniques on a technology characterization vehicle. - Demonstrate 45nm RHBD Test Circuit Vehicle. - Demonstrate initial 90nm radiation hardened 64Mb Static Random Access Memory (SRAM). - Plan and conduct Mighty Guardian XV Force-on-Force test to evaluate nuclear security policy for waterfront restricted areas at Naval Base Kings Bay, GA. - Initiate planning for Mighty Guardian XVI Force-on-Force test to evaluate nuclear security policy for Prime Nuclear Airlift Forces (PNAF) and On-Base Convoys at a location still to be determined. - Conduct research, development, test, and evaluation on physical security technologies designed to enhance protection of the nuclear stockpile as determined by the Services. ***FY 2013 Plans:*** - Transition 90nm ASIC Qualified Manufacturer List radiation hardened microelectronics activity to user community - Transition 90nm radiation hardened 64Mb Static Random Access Memory (SRAM) to user community - Develop 45nm RHBD Product Demonstration Vehicle (PDV) - Conduct engineering studies in support of and continue planning Mighty Guardian XVI Force-on-Force test to evaluate nuclear security policy for Prime Nuclear Airlift Forces (PNAF) and On-Base Convoys at a location still to be determined. - Conduct research, development, test, and evaluation on physical security technologies designed to enhance protection of the nuclear stockpile as determined by the Services.			
Accomplishments/Planned Programs Subtotals	15.702	6.985	6.129

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RI: *Nuclear Survivability*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• 23/0602718BR: *WMD Defeat Technologies*	18.525	17.503	18.810		18.810	18.965	20.142	21.428	21.490	Continuing	Continuing

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

Achieve Radiation Hardened and Radiation Hardened by Design (RHBD) 90nm Application Specific Integrated Circuit design flow capability.

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 research, development, test, and evaluation for physical security technologies is determined by performers completing the project on-time and within budget, all stated tasks in the statement of work/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.

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RL: *Nuclear & Radiological Effects*	

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
RL: *Nuclear & Radiological Effects*	2.661	-	-	-	-	-	-	-	-	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Nuclear and Radiological Effects project develops nuclear and radiological assessment modeling tools to support military operational planning, weapon effects predictions, and strategic system design decisions; consolidate validated Defense Threat Reduction Agency 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 and address the priority needs of the Combatant Commands and the Department of Defense, develop and provide electromagnetic pulse assessment capabilities to support national and military operational planning, weapon effects predictions, and national strategic systems designs; and develop foreign nuclear weapon outputs. Related funding for this project can be found in the WMD Defeat Technologies: 0602718BR, budget exhibit.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
Title: RL - Nuclear & Radiological Effects	2.661	-	-
Description: Project RL develops nuclear and radiological assessment modeling tools to support military operational planning, weapon effects predictions, and strategic system design decisions. Related funding for this project can be found in the WMD Defeat Technologies: 0602718BR, budget exhibit.			
FY 2011 Accomplishments: - Updated Nuclear Weapon Effects Database System (NWEDS) development for the U.S. Army Nuclear and Combating WMD Agency (USANCA). - Updated Probability of Damage Calculator (PDCalc) development for USSTRATCOM. - Updated Nuclear Capabilities Services (NuCS) in DTRA's net-centric architecture. - Published two volumes of Journal of Radiation Effects Research and Engineering.			
Accomplishments/Planned Programs Subtotals	2.661	-	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• 23/0602718BR: *WMD Defeat Technologies*	15.891	25.343	25.752		25.752	23.904	25.202	25.539	25.964	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RL: *Nuclear & Radiological Effects*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• 118/0605000BR: *WMD Defeat Capabilities*	7.826	5.888	5.749		5.749	5.995	6.077	8.359	8.541	Continuing	Continuing

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

Complete transition of all hazard source terms to the Chemical and Biological (Chem-Bio) Defense Program's Joint Effects Model (JEM) Block II enhancing our ability to predict hazards associated with weapons of mass destruction.

Provide Department of Defense 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.

Complete new version of United States Strategic Command (USSTRATCOM) official strategic targeting code used to determine the probability of damage from nuclear weapons.

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RM: *WMD Battle Management*	

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
RM: *WMD Battle Management*	29.143	22.303	22.503	-	22.503	22.527	22.937	23.700	24.328	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Weapons of Mass Destruction (WMD) Battle Management 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 and Biological Weapon aerosol agents released during these WMD counterforce strikes.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
Title: RM: WMD Battle Management	29.143	22.303	22.503
Description: 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 Defense Threat Reduction Agency Experimentation Lab. ***FY 2011 Accomplishments:*** - Conducted development testing of the WMD Aerial Collection System (WACS) on the SHADOW unmanned aerial vehicle (UAV). - Performed annual cycle of requirements collection, challenge proposals, resource allocation, and tech support through High Performance Computing (HPC) effort. - Supported Massive Ordinance Penetrator (MOP) program with provision of high priority, high performance computing service for reduced time to solution for time-critical calculations (~6,000,000 total computer hours). - Secured two of the 14 DoD Challenge Proposals for improved quality of service in time limit, allowable job size, and job throughput on DoD high performance computers for DTRA research and development (R&D) efforts. - Provided 23 Targeting and Weaponeering Analysis Cell (TWAC) academic sessions, built 200+ targeting recommendation packages (TRPs) supporting Combatant Command (COCOM) requirements, and provided optimized dual delivery (ODD) weaponeering support.			

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RM: *WMD Battle Management*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Delivered a specialized Integrated Munitions Effects Assessment (IMEA) version with appropriate models and planning capacity to support the fielding and operational planning of MOP. - Delivered Vulnerability Assessment Protection Option (VAPO) version 5.0 with critical infrastructure protection modeling and vulnerability analysis, nuclear contouring, and suicide bomber modeling. - Enhanced Wide Area Aerial Surveillance technology to produce persistent coverage of WMD targets to predict and counter threats from Chemical, Biological, Radiological, Nuclear and Explosives (CBRNE). - Demonstrated the capability to integrate sensor data into the Airborne Persistent Imagery eXploitation (APIX) Viewer to provide CBRN detection capability on a wide-area surveillance platform. - Developed and integrated miniaturized chemical and radiological sensors with radio frequency tags. - Developed Counter-WMD Persistent Intelligence, Surveillance, and Reconnaissance (P-ISR) integration framework for the fusion of data from multiple sources that provide activity-based intelligence. - Continued development of a near real-time Battle Damage Assessment (BDA) system for conventional strikes and conducted assessment testing of the BDA system sensor canisters.			
FY 2012 Plans: - Continue to support the Combatant Commands with the further refinement and development of operation center critical technologies that will enhance the capability of rapid response in regards to next generational reach back capabilities. - Conduct demonstration of the WMD Aerial Collection System (WACS) to support technology assessment of system operation and to confirm that WACS fulfills CBRN requirements for the Shadow Unmanned Aircraft System (UAS). - Initiate the design of WACS prototypes for the U.S. Army that will meet the Army's end-state, fully integrated WACS capability. - Develop and demonstrate novel tag technologies for C-WMD Tag, Track and Locate Program. - Conduct an operationally representative flight test of a near real-time Battle Damage Assessment (BDA) system for conventional strikes. - Deliver Integrated Munitions Effects Assessment 2012 with site-level attack capability. - Provide Targeting and Weaponeering Analysis Cell academic sessions and targeting recommendation packages supporting Combatant Command (COCOM) requirements. - Begin the effort to integrate first principle nuclear fallout modeling codes into Graphic User Interface (GUI) based hazard prediction models.			
FY 2013 Plans: - Continue to support the Combatant Commands with the further refinement and development of operation center critical technologies that will enhance the capability of rapid response in regards to next generational reach back capabilities. - Continue the effort to integrate first principle nuclear fallout modeling codes into GUI-based hazard prediction models. - Provide TWAC academic sessions and targeting recommendation packages supporting Combatant Command (COCOM) requirements.			

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RM: *WMD Battle Management*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Deliver VAPO version 6.0 with improved prediction of chemical/biological threats; improved explosive effects, progressive collapse, and infrastructure modeling; incorporation of the U.K.'s Human Injury Prediction code; and new forward operating base modeling capability to support combatant commands. - Demonstrate miniaturized chemical and radiological sensors with radio frequency tags designed to enhance counter-WMD persistent surveillance, intelligence and reconnaissance. - Complete system assessment of the Phase 2 conventional strike BDA system, to include the Chemical, Acoustic, Nuclear and Seismic sensor capabilities, mesh networking with two or more hubs, and relay of BDA data via a long haul (satellite) interface and display on a warfighter interface. - Complete the Autonomous Reconnaissance Infrared Electro-optical Loitering (ARIEL) vehicle final design, in support of combating WMD long range sensor battle damage assessment. - Complete WACS (U.S. Navy variant) Preliminary Design. - Develop DTRA Spiral Sensors for CWMD Tag, Track and Locate (TTL) Program.			
Accomplishments/Planned Programs Subtotals	29.143	22.303	22.503

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• 23/0602718BR: *WMD Defeat Technologies*	18.255	13.761	18.969		18.969	19.066	19.988	20.593	20.729	Continuing	Continuing

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

Standoff detection range of Weapons of Mass Destruction (WMD) reconnaissance system.

Number of new capabilities delivered to Combatant Commands (COCOMs).

Number of weaponeering solutions delivered to COCOMs.

Increase automation of the analytic process used by Defense Threat Reduction Agency Reachback, DTRA Operations Center and the U.S. Strategic Command Center for Combating WMD.

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RR: *Test Infrastructure*	

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
RR: *Test Infrastructure*	1.790	-	-	-	-	-	-	-	-	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Test Infrastructure project provides a unique national test bed capability for simulated Weapons of Mass Destruction (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 Department of Defense (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. It 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 the DoD and supports the counterproliferation pillar of the National Strategy to Combat WMD. Related funding for this project can be found in the WMD Defeat Technologies; 0602718BR, budget exhibit.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
Title: RR - Test Infrastructure	1.790	-	-
Description: Project RR provides a unique national test bed capability for simulated Weapons of Mass Destruction (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 Department of Defense (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. Related funding for this project can be found in the WMD Defeat Technologies: 0602718BR, budget exhibit.			
FY 2011 Accomplishments: - Identified and purchased data acquisition systems in support of the tunnel U12u effort at Nevada National Security Site, NV. - Performed test site remediation at various test beds and test articles on Chestnut Test Site, Kirtland AFB and White Sands Missile Range, NM. - Procured instrumentation systems for DISTINCT DOLPHIN 2; structural and column collapse testing. - Provided construction effort for DISTINCT FOX 2; steep slope attack testing. - Invested in data acquisition systems and optics systems in support of DTRA RDT&E test programs. - Purchased Chemical/Biological sampler detector devices to support RDT&E Chemical/Biological programs. - Acquired instrumentation sequencer and timing and firing equipment to support DTRA RDT&E test programs.			

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RR: *Test Infrastructure*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Procured instrumentation for weapons effects phenomenology testing.			
Accomplishments/Planned Programs Subtotals	1.790	-	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• 23/0602718BR: *WMD Defeat Technologies*	13.509	21.941	13.782		13.782	14.135	14.414	15.005	15.610	Continuing	Continuing

D. Acquisition Strategy

N/A

E. Performance Metrics

Number of tests executed safely, i.e., no loss of life or limb, no unintentional significant damage of property.
FY11 – No safety issues/incidents during scheduled test events.

Number of tests that are evaluated through the milestone review process.
100% of all tests completing scheduled milestones.

Number of tests that undergo environmental assessment consistent with existing Environmental Impact Statements.
All test executed undergo environmental review consistent with existing Environmental Impact Statements.
FY 10 - 125 Tests
FY 11 - 123 Tests

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency			DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RT: *Target Assessment Technologies*	

COST ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
RT: *Target Assessment Technologies*	35.047	33.493	31.298	-	31.298	31.883	32.743	33.413	34.139	Continuing	Continuing

A. Mission Description and Budget Item Justification

For some hard and deeply buried targets, physical destruction is neither possible, nor practical, with current conventional weapons and employment techniques. It may be possible, however, to achieve target defeat objectives by denying or disrupting the mission or function of the target facility. Functional defeat, however, requires more information, more detailed analysis of the target. The functional defeat process includes finding and identifying a facility, characterizing its function and physical layout, determining its vulnerabilities to available weapons, planning and executing an attack, assessing damage, and if necessary, suppressing reconstitution efforts and re-attacking the facility. Target Assessment Technologies provides the Combatant Commands and the Intelligence Community with technologies and processes to find and characterize Weapons of Mass Destruction (WMD) targets located in underground facilities and then, in near-real-time, 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 physical or functional defeat. Extending this activity and applying these processes to WMD time-dependent target characterization and threat analysis presents the next technical challenge. The Target Assessment Technologies project consists of three subordinate and related activities: (1) Targeting and Intelligence Community Technology Development; (2) Find, Characterize, Assess Technology Development; and (3) Counter-WMD Analysis Cell (C-WAC) Technology Support.

The decrease from FY 2012 to FY 2013 is predominately due to decreased investment in Counter-WMD Analysis Cell collaboration with the National Counterproliferation Center (NCPC) and the Intelligence Community.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
Title: RT: Target Assessment Technologies	35.047	33.493	31.298
Description: Project RT provides the Combatant Commands and the Intelligence Community with technologies and processes to find and characterize hard and deeply buried targets and then assess the results of attacks against those targets.			
FY 2011 Accomplishments: - Added WMD systems and process characterization modeling and assessment capabilities to the Underground Targeting and Analysis System (UTAS) functionality for support of the COCOMs and Intelligence Community targeting and weaponeering requirements. - Fully integrated models for analysis and assessment of weapons effects on WMD related equipment and systems into UTAS for use by the Intelligence Community. - Continued target characterization training for the Underground Facility (UGF) and WMD target defeat communities. - Designed, developed and tested on-node data fusion to enhance Integrated Sensor System (ISS) surveillance capabilities for support of Combatant Commands (COCOMs) and Intelligence Community target characterization and assessment needs.			

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RT: *Target Assessment Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Demonstrated Counter-WMD Analysis Cell (C-WAC) initial capabilities to model and analyze chemical weapons threat development processes in response to COCOMs and Intelligence Community counter WMD requirements. - Completed development of the fifth (of eleven planned) universal rock models (URM) for use in characterizing the geological properties associated with underground targets.			
FY 2012 Plans: - Demonstrate Integrated Sensor System (ISS) sensor mission planning and data fusion capabilities as part of the USNORTHCOM Rapid Reaction Tunnel Detection (R2TD) Joint Concept Technology Demonstration (JCTD). - Demonstrate Integrated Sensor System (ISS) sensor mission planning and data fusion capabilities as part of the DTRA Counter WMD Technologies Directorate's Integrated Technology Demonstration 1 (ITD-1). - Develop and demonstrate C-WAC capability to perform strategic level analysis of adversary WMD programs in support of the Intelligence Community (IC) and COCOM. - Develop and demonstrate an UTAS version that combines buildings, bunkers and tunnels into a common operating picture (COP) for support of IC and COCOM target analysis. - Demonstrate a UTAS version that integrates analysis of facilities and WMD functional process models for enhanced functional characterization of WMD targets. - Continue target characterization training for the UGF and WMD target defeat communities.			
FY 2013 Plans: - Demonstrate the initial version of the ISS software suite in realistic field conditions in two mission profiles. - Validate C-WAC Nuclear Fuel Cycle model for support of COCOM and IC counter-WMD analysis. - Demonstrate an intermediate analytical tool for the characterization of dual-use technologies related to the possible development of biological weapons (BW) by potential adversaries. - Deliver UTAS modeling capability for support of IC and COCOM target network systems analysis and characterization. - Continue target characterization technical training for the UGF and WMD target defeat communities.			
Accomplishments/Planned Programs Subtotals	35.047	33.493	31.298

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• 23/0602718BR: *WMD Defeat Technologies*	0.845	0.000	0.000		0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

D. Acquisition Strategy

Not Applicable

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RT: *Target Assessment Technologies*

E. Performance Metrics

By the end of FY 2013, increase WMD target characterization capability through successful incorporation of WMD systems and process characterization modeling and assessment capabilities into the UTAS functionality.

By the end of FY 2013, demonstrate capability to remotely determine target geotechnical properties to within 35 percent for use in UTAS calculations.

By the end of FY 2013, improve UTAS analysis of weapons effects on WMD targets through integration of models for analysis and assessment of weapons effects on a broader range of WMD-related equipment.

By the end of FY 2013, demonstrate improved ISS on-node data fusion capability.

By the end of FY 2013, improve WMD development analysis capability through C-WAC modeling and analysis.