Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Defense Threat Reduction Agency											DATE: April 2013	
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)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	301.571	279.166	275.022	274.033	-	274.033	275.880	287.174	294.124	297.958	Continuing	Continuing
RA: *Information Science and Applications*	4.815	13.354	7.455	2.431	-	2.431	1.934	2.415	2.351	2.381	Continuing	Continuing
RE: *Counter-Terrorism Technologies*	116.668	112.905	110.657	111.658	-	111.658	111.820	114.130	116.796	118.230	Continuing	Continuing
RF: *Detection and Forensics Technologies*	77.472	72.980	76.298	74.556	-	74.556	75.219	77.505	79.198	79.891	Continuing	Continuing
RG: *Defeat Technologies*	18.273	14.606	20.682	21.811	-	21.811	19.776	22.718	23.417	23.811	Continuing	Continuing
RI: *Nuclear Survivability*	15.702	5.388	6.129	6.016	-	6.016	5.971	6.283	6.903	6.941	Continuing	Continuing
RL: *Nuclear & Radiological Effects*	2.661	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
RM: *WMD Counterforce Technologies*	29.143	23.735	22.503	29.420	-	29.420	31.893	33.971	34.523	35.108	Continuing	Continuing
RR: *Test Infrastructure*	1.790	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
RT: *Target Assessment Technologies*	35.047	36.198	31.298	28.141	-	28.141	29.267	30.152	30.936	31.596	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

Note

*RA Project title change from Systems Engineering and Innovation starting in FY 2014
*RF Project title change from Detection Technology starting in FY 2014
*RG Project title change from Advanced Energetics & Counter WMD Weapons starting in FY 2014
*RM Project title change from Battle Management starting in FY 2014

A. Mission Description and Budget Item Justification

The Proliferation, Prevention and Defeat program element 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 - Information Science and Applications, RE - Counter-Terrorism Technologies, RF – Detection and Forensics Technologies, RG - Defeat Technologies, RI - Nuclear Survivability, RM - WMD Counterforce Technologies,

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and RT - Target Assessment Technologies. These projects support 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.

The DTRA's Proliferation, Prevention and Defeat program element supports the National Strategy for Countering Biological Threats priorities. The strategy spells out four focus areas: 1) Promote global health security efforts through building and improving international capacity to prevent, detect, and respond to infectious disease threats, whether caused by natural, accidental, or deliberate events, 2) Establish and reinforce norms against the misuse of the life sciences, 3) Expand our capability to prevent, attribute, and apprehend those engaged in biological weapons proliferation or terrorism, with a focus on facilitating data sharing and knowledge discovery to improve integrated capabilities (Capability Expansion), and 4) Leverage science, technology, and innovation through domestic and international partnerships and agreements to improve global capacity to respond to and recover from biological incidents (Leveraging Science). There are three of the four focus areas (1, 3, and 4) supported in this program element under projects RE-Counter-Terrorism Technologies, RM-WMD Counterforce Technologies, and RT-Target Assessment Technologies. Details are provided in the R-2a exhibits.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	283.073	275.022	280.713	-	280.713
Current President's Budget	279.166	275.022	274.033	-	274.033
Total Adjustments	-3.907	0.000	-6.680	-	-6.680
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-3.907	-			
• Realignment	-	-	-0.435	-	-0.435
• Programmatic - Fiscal Guidance	-	-	-6.245	-	-6.245

Change Summary Explanation

The decrease from the previous President's Budget submission in FY 2012 is due to the internal SBIR transfer. The decrease in FY 2014 from the previous President's Budget submission is predominately due to the realignment of test bed facilities from RT-Target Assessment Technologies in Program Element (PE) 0603160BR to RR-Test Infrastructure in PE 0602718BR to better reflect the nature of those activities and decreased investment in RF-Detection and Forensics Technologies and RT-Target Assessment Technologies.

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COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
RA: *Information Science and Applications*	4.815	13.354	7.455	2.431	-	2.431	1.934	2.415	2.351	2.381	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

Note

*RA Project title change from Systems Engineering and Innovation starting in FY 2014

A. Mission Description and Budget Item Justification

The Information Science and Applications project provides (1) systems engineering and analysis support across all other projects, (2) advisory technical Reachback support on Weapons of Mass Destruction (WMD) effects and consequences, and (3) research and development support for cooperative programs, technology demonstrations, and vulnerability assessments that enhance foreign partner ability to assess, prevent, and respond to threats and events involving weapons of mass destruction. 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. The Technical Reachback effort provides 24 hour/7 days per week information and analyses on potential impacts of a WMD event to Warfighters and First Responders in consult with DTRA's Combating WMD Research and Development subject matter experts. This project also provides support to international CWMD science and technology cooperation by developing modifications, improvements, or new technologies and information tools suitable for foreign release and cooperative efforts. Further, this project 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 provides a platform to ensure continued sustainability and viability of the nuclear weapon stockpile. Finally, it conducts the development, validation and fielding of the Arms Control Enterprise System (ACES) as a part of the U.S. commitment under arms control treaties

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 the information technology test and engineering program for Information Operations Condition (INFOCON) 3.

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The decrease from FY 2013 to FY 2014 is predominately due to the net effect of the consolidation of Reachback Support operations in Project RM - WMD Counterforce Technologies in Program Element (PE) 0603160BR and increased investment in research and development analysis support funded by a transfer from PE 0602718BR.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: RA: Systems Engineering and Innovation	13.354	7.455	2.431

Description: Project RA (Information Science and Applications) develops innovative technologies and modeling and simulation (M&S) capabilities and provides Technical Reachback support to create decision advantage for the U.S. and our Allies through improved situational understanding across the complete CWMD mission space.

FY 2012 Accomplishments:
- Developed 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.
- 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.
- Continued 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.
- Continued 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.
- Conducted strategic analyses and assessments on emerging WMD threats.
- Supported over 1, 400 requests for information, providing technical advisory reachback support on WMD effects and consequences.
- Developed, tested, and deployed Arms Control Enterprise System (ACES) New START Treaty (NST) Increments #2 and #3 in FY 2012, and Increment #4 in early FY 2013. The ACES NST will be at full operational capability (FOC) upon delivery of Increment #4, and no further software development is planned after that point.
- Began 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.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
- Began modifications and capability improvements to vulnerability assessment software and integrated WMD toolsets, including initial modularization of software architectures to allow for easy removal and optional replacement of engineering models. ***FY 2013 Plans:*** - 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. ***FY 2014 Plans:*** - Continue modifications and capability improvements to vulnerability assessment software and integrated WMD.			
Accomplishments/Planned Programs Subtotals	13.354	7.455	2.431

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• 25/0602718BR: *WMD Defeat Technologies*	42.279	33.396	31.263		31.263	32.901	31.870	33.852	34.505	Continuing	Continuing
• 153/0605502BR: *Small Business Innovation Research*	6.964	0.000	0.000		0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Remarks

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

Support the Office of Secretary of Defense, Joint Staff, Combatant Commands, Services, Nuclear Weapon Custodial Units, and Department of Energy.
Deploy ACES increments 2 through 4 on schedule.
Number of requests for information / analysis submitted to Technical Reachback and returned to respective customers.

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COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
RE: *Counter-Terrorism Technologies*	116.668	112.905	110.657	111.658	-	111.658	111.820	114.130	116.796	118.230	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

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 directly enhances USSOCOM, 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 high priority for the Defense Threat Reduction Agency (DTRA). The following efforts are included in this project:

The Counter WMD-Terrorism (CWMD-T) Counterproliferation (CP) research and development program is a collaborative effort with US Special Operations Command (USSOCOM) where the DTRA manages and sub-allocates funding directly to USSOCOM 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 Counter WMD-Terrorism (CWMD-T) technologies program builds upon collaborative efforts with the warfighter. This program develops proofs 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 develops technologies to enable the warfighter to locate, identify, characterize, and access Chemical, Biological, Radiological, and Nuclear (CBRN) 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 WMDs while minimizing risk to U.S. forces in support of CT/CP offensive operations.

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 operations and activities to prevent terrorists from developing, acquiring, proliferating, or using WMD.

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Further, Program RE supports the National Strategy for Countering Biological Threat priority/focus areas 3) Capability Expansion and 4) Leveraging Science. One example is Counter WMD-Terrorism (CWMD-T) Counterproliferation (CP) research and development, which funds rapid technology development to provide warfighters with the operational capability to prevent employment of biological weapons. Further details are classified.

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

The increase from FY 2013 to FY 2014 is predominately due to increased investment in CWMD-T support to USSOCOM.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: RE: Counter-Terrorism Technologies	112.905	110.657	111.658

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 2012 Accomplishments:
- Continued development and transitioned 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 developed 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.
- Developed and transitioned 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.
- Continued funding of three 48-month technology solutions that began in FY 2010 and managed their progress in countering the proliferation of WMD.
- SCSP reached Full Operational Capability (FOC) while increasing support to COCOM planning efforts related to CWMD-T from previous levels.
- Developed systemic operational plans for integrating diplomatic, military, economic, financial, intelligence and law enforcement to counter proliferation of WMD and acquisition by known terrorist organizations.
- Began development of next generation imaging capabilities to allow Explosive Ordnance Disposal (EOD) forces advanced diagnostic capabilities.
- Continued work on Knowledge Management Objectives begun in FY 2010; continued 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:

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
- 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 FY 2010; 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. - Establish a collaborative virtual workspace (linked to dynamic SCSP data sets/feeds) that enables CWMD-T planning by geographically separated COCOMs. ***FY 2014 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 and enhanced electronic test objects for the EOD Device Defeat program. - Develop impeded tools for IED triggers. - Continue to support COCOM planning efforts related to CWMD-T. - Continue multi-year efforts to develop and transition innovative CWMD tools designed to locate, identify, characterize, assess, and attack WMD production and storage facilities with minimal-to-no collateral damage or loss of life. - Build precision shaped charges using a proven manufacturing process through the use or modification of an existing shaped charge design. - Transition next generation imaging facilities to allow EOD forces advanced diagnostic capabilities. - Continue to improve and further enhance the usability and capability of CWMD-T global dynamic picture of the operating environment for use by the DoD and USG Community of Interest. - Continue to improve upon COCOM planning efforts related to CWMD-T to include the scheduled release of automated planning and analyst support tools for large-scale data management and information extraction. - Continue modeling efforts to include application and integration of models into SCSP's high performance computing architecture.			
Accomplishments/Planned Programs Subtotals	112.905	110.657	111.658

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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• 23/0602718BR: *WMD Defeat Technologies*	2.409	0.000	0.000		0.000	0.000	0.000	0.000		Continuing	Continuing

Remarks

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.

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COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
RF: *Detection and Forensics Technologies*	77.472	72.980	76.298	74.556	-	74.556	75.219	77.505	79.198	79.891	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

Note

*Project RF title change from Detection Technology starting in FY 2014

A. Mission Description and Budget Item Justification

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

This 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 capabilities to detect and identify nuclear and radiological weapons. It supports the attribution process through development, demonstration, and transition of improved post-detonation National Technical Nuclear Forensics (NTNF) capabilities in the areas of materials collection, debris diagnostics and materials analysis, and prompt diagnostics and device reconstruction. Efforts under this project also support international peacekeeping and nonproliferation objectives, on-site and aerial inspections and monitoring, on-site sampling and sample transport, and on- and off-site analysis to meet forensic, verification, monitoring and confidence-building requirements.

The increase from FY 2012 to FY 2013 is predominately due to added emphasis on the new Nuclear Threats mission area, and additional resources that were added to determining the military utility of Integrated Stand-off Inspection System (ISIS).

The decrease from FY 2013 to FY 2014 is predominately due to decreased investment in Arms Control Monitoring and Verification activities and Advanced Detector Technology due to the completion of two long term projects.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: RF: Detection and Forensics Technologies	72.980	76.298	74.556
Description: Project RF (Detection and Forensics Technologies) develops technologies, systems and procedures for post-detonation nuclear forensics, to detect, identify, track, tag, locate, monitor and interdict strategic and improvised nuclear and			

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
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 2012 Accomplishments:*** - Continued design and fabrication of a prototype passive interrogation system for determining the location and signature of nuclear material. - Continued 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. - Completed 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. - Continued to develop and demonstrate alternative neutron detection technologies for replacement of helium-3 neutron detectors. - Continued developing and improving high performing microelectronics to determine the location of a radiological source. - Continued 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. - Continued to develop, accelerate development where appropriate, and demonstrate 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. - Continued development of a fieldable rapid separation analysis capability to shorten the analysis timeline. - Continued 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. - Under the NTNF Joint Capability Technology Demonstration (JCTD), tested, trained, and operationally demonstrated/exercised (ODX) advanced post-detonation ground/airborne particulate collection and yield determination technologies. - Continued robotic air/ground sample collection improvements; completing development and prototype fielding of enhanced semi-autonomous ground and airborne debris collection capabilities in conjunction with completion of the NTNF JCTD in FY 2013. - Continued development of a fieldable standoff active interrogation system for standoff detection and warning of hidden and shielded nuclear material. - Continued 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. - Continued to improve performance of new detector materials, imaging and spectroscopy systems, and signals analysis methods through rigorous laboratory and field testing.			

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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 and Forensics Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
- 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. - Investigated capability gaps and opportunities for insertion of radiation detection technology for treaty monitoring and verification. - Continued transitioning multiple near term technologies to generate prototypes and design packages to assist operational users. - Continued to support standoff experiments with the Photonuclear Inspection and Threat Analysis System (PITAS), a Bremsstrahlung beam generating system, at the Standoff Operational Exercise (SOX) Range. - Continued efforts to establish the Integrated Standoff Inspection System (ISIS) as an Advanced Technology Demonstration. - Continued 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. - Completed and applied Spiral I of the Arms Control Enterprise System (ACES) that enhances the database for strategic bomber movements and inspection operations. - Completed and placed into service Spiral II of ACES that addresses production facilities and weapons transfers. - Demonstrated Spiral 3 of the Arms Control Enterprise System (ACES) that addresses prototypes, new equipment, demos, and telemetry - Initiated and completed Phase I near source strong motion-small scale tests and high fidelity analysis for detection and identification of low yield and evasive testing. - Completed the Analysis of Alternatives for the Arms Control Enterprise System and launched the Advanced Knowledge Management System Project - Conducted laboratory experiments with lasers to assess shock/seismic and electromagnetic signatures from underground nuclear tests and used these experiments to test and calibrate advanced sensors. - Assessed the utility of laser induced breakdown spectroscopy and other chemical analysis techniques for man portable detection and analysis capability for the Fissile Material Cutoff Treaty. - Demonstrated field portable gamma ray and neutron detection system for New and Future START warhead counting and identification. - Assessed the utility of cosmic ray muons and fast neutrons for warhead counting and assessment for Future START. - Initiated materials research for radioactive particulate monitoring to detect underground nuclear explosions for Comprehensive Nuclear Test Ban Treaty (CTBT). - Completed operational characterization of the imaging and high spectral resolution systems for man portable, vehicle borne and stationary radiological detectors. - Began development of the next generation NIMBLE ELDER network technologies. - Began operational characterization of the emerging radiological active detection prototypes. - Continued development of the Force Protection improvement for NIMBLE ELDER detection equipment. - Continued development of NIMBLE ELDER maritime detection capabilities.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
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 and Forensics Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
- Continued cooperation and acceptance of DTRA developed detection technologies for operational development. - Conducted NIMBLE ELDER evaluation exercises assessing radiological/nuclear detection technology at the Technology Readiness Level (TRL) 3, 4, 5, and 6 development against the approved NIMBLE ELDER capability gaps. - Continued testing and evaluation nuclear forensics sample collection procedures through demonstrations and exercises. - Conducted a “Track 2” dialog between the US National Academy of Sciences and the Russian Academy of Sciences on transparency measures for arms control. - Conducted an investigation of technology needs and international partnership opportunities for technology development for a Future Multilateral START treaty. - Started the digitization and analysis of nuclear test data from Eurasian test sites.			
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. - 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.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
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 and Forensics Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
- 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. - 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 level of development against the approved NIMBLE ELDER capability gaps. - Accelerate the development of non-radiological detection S&T projects.			
FY 2014 Plans: - Continue near-source strong motion-small scale tests and high fidelity analysis for detection and identification of low yield and evasive testing. - Conduct additional laboratory experiments with lasers to assess shock/seismic and electromagnetic signatures from underground nuclear tests including the first decoupling experiments with the National Ignition Facility - Conduct warhead imaging experiments and demonstrations for warheads deployed on strategic launch and delivery systems that could lead to adoption of this technology for verification of future START treaties. - Down select to the most promising warhead characterization approach for application to future START treaties. - Test and transition a prototype version of the Knowledge Management Strategic Information System software for Future START and other treaty database and notification needs. - Field a prototype for an on-site inspection system and virtual training tool for nuclear materials production monitoring in support of the Fissile Material Cutoff Treaty and the Army nuclear disablement mission			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
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 and Forensics Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
- Develop and demonstrate advanced materials for particulate and gaseous radionuclides to detect underground nuclear testing in support of Air Force and international treaty monitoring requirements - Conduct international partnership high explosive tests to calibrate seismic and infrasound international monitoring stations. - Continue preparations for R/N detector program of record decisions. - Expand the level of non-radiological sensor support for R/N search operations. - 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, modeling to support nuclear device reconstruction, and forensics data to lower uncertainties/increase confidence and improve timeliness of technical nuclear forensics (TNF) conclusions. Includes development of new debris collection, field analysis concepts, in-laboratory timeline improvements, new signature development, improved modeling and simulation capabilities, and other supporting technologies. - 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 exploiting all-source nuclear threat signatures, characteristics, and corresponding detection modalities; develop the proper tipping, queuing, and data fusion techniques and algorithms to enable the rapid and effective accumulation of all-source intelligence on nuclear threat scenarios. - 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. - Complete the development of a modular based detection system using near term technologies to generate prototypes and design packages to assist operational users. - Complete development of room temperature high-resolution spectrometers to determine signature of nuclear material. - Continue to develop CWMD network technologies. - Continue the development of force protection modifications to R/N detector technologies. - Develop and assess software improvements to current R/N detector technologies. - Expand the development of CWMD/Technical Support Group training technologies for R/N search equipment.			
Accomplishments/Planned Programs Subtotals	72.980	76.298	74.556

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
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 and Forensics Technologies*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• 25/0602718BR: *WMD Defeat Technologies*	45.570	44.998	40.454		40.454	40.857	41.638	42.560	43.447	Continuing	Continuing
• 124/0605000BR: *System Development and Demonstration*	0.000	0.000	6.906		6.906	6.890	7.159	7.400	7.500	Continuing	Continuing

Remarks

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).

Enable sharing of real-time sensor data across the interagency.

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 operational acceptance of transitional detection technologies.

Successful utilization of the Technology Program Management Model (TPMM) to manage projects, track deliverables, risk, and determine project progress.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency			DATE: April 2013
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: *Defeat Technologies*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
RG: *Defeat Technologies*	18.273	14.606	20.682	21.811	-	21.811	19.776	22.718	23.417	23.811	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

Note

*RG Project title change from Advanced Energetics & Counter WMD Weapons starting in FY 2014

A. Mission Description and Budget Item Justification

The Defeat Technologies Project develops, integrates, demonstrates and transitions innovative kinetic and non-kinetic weapon capabilities to expand traditional and asymmetric options available to Combatant Commanders (CCDRs) to deny, disrupt, and defeat adversarial use of Weapons of Mass Destruction (WMD) while minimizing collateral effects from incidentally released agents. Technology development focuses on the physical or functional defeat of (1) chemical, biological, radiological, and nuclear (CBRN) threat materials, (2) an adversary's ability to deliver the same, as well as (3) the physical and non-physical support networks enabling both. It does so through the systematic identification and maturation of advanced technologies capable of defeating WMD agents or agent based processes, then integrating them into weapons, delivery systems or rapid WMD elimination capabilities that are most relevant to the COCOM's WMD Defeat CONOPS and their AOR. This program includes developing specific WMD agent/agent-based process simulants, test infrastructure, and sampling capability required for effective development, testing, and evaluation (DT&E) of next-generation capabilities to ensure optimum weapon solutions are achieved based on this technology. The program is addressing defeat of adversaries' offensive WMD programs through integration of current conventional weapons capabilities and next generation kinetic and non-kinetic solutions to provide full-spectrum asymmetric defeat options. The program addresses requirements delineated in the Quadrennial Defense Review and Strategic Planning Guidance as codified Joint Capabilities Integration and Development System (JCIDS), Service requirements documents, and COCOM and Agency Priority Lists for lethal and non-lethal C-WMD capability.

The increase from FY 2012 to FY 2013 is predominately due to increased investment in Counter WMD Hard Target Defeat (HTD) 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.

The increase from FY 2013 to FY 2014 is predominately due to increased investment in CWMD HTD Weapons Technologies efforts.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: RG: Defeat Technologies	14.606	20.682	21.811
Description: Project RG (Defeat Technologies) develops advanced technologies and weapon concepts and validates their applicability as counter Weapons of Mass Destruction (WMD).			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
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: *Defeat Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
FY 2012 Accomplishments: - Developed Integrated Precision Ordnance Delivery System (IPODS) preliminary Hardware Design and Software Architecture Design. - 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. - Conducted computerized fit checks on F-15E, B-52, and B-2 aircraft carriage platforms and perform scale model IPODS wind tunnel testing. - Examined alternate payload candidates for potential integration into IPODS baseline design. - Advanced the development of a diagnostic tool that improves upon the ability to measure the effects of new weapons that defeat WMD. - Initiated development of Modular Autonomous Countering WMD System (MACS) and concept of operation architecture. - Began development of a capability that will allow the US to attack WMD in 'soft' targets like surface structures, while minimizing the spread of contamination. - Developed initial MACS prototype to demonstrate design concepts will meet requirements. - Began Kinetic Fireball sub-munitions into warhead. - Conducted High Power Microwave disruption and forensics testing. - Completed 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.			
FY 2014 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) System integration testing.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
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: *Defeat Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
- Complete HAMMER ATD weapon design, critical component testing, and payload subscale bio defeat tests. - Complete HAMMER full-scale test. - Complete Modular Autonomous Countering WMD System (MACS) component integration. - Design MACS Family of Systems (FOS) architecture.			
Accomplishments/Planned Programs Subtotals	14.606	20.682	21.811

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• 25/0602718BR: *WMD Defeat Technologies*	15.881	14.645	15.059		15.059	12.753	13.971	13.206	13.459	Continuing	Continuing

Remarks

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 Technology Readiness Level (TRL) 4/5.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency			DATE: April 2013
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)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
RI: *Nuclear Survivability*	15.702	5.388	6.129	6.016	-	6.016	5.971	6.283	6.903	6.941	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

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 increase from FY 2012 to FY 2013 is predominately due to an increased investment in experimental capabilities and radiation hardened microelectronics.

The decrease from FY 2013 to FY 2014 is due to decreased investment in Mighty Guardian and Radiation Hardened Microelectronics.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: RI: Nuclear Survivability	5.388	6.129	6.016

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
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 2012	FY 2013	FY 2014
Description: Project RI (Nuclear Survivability) 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 2012 Accomplishments:*** - Developed 90nm Radiation Hardening By Design (RHBD) qualification vehicle for Application Specific Integrated Circuit (ASIC) design flow capability. - Continued investigation of 45nm RHBD mitigation techniques on a technology characterization vehicle. - Demonstrated 45nm RHBD Test Circuit Vehicle. - Demonstrated initial 90nm radiation hardened 64Mb Static Random Access Memory (SRAM). - Conducted Mighty Guardian XV Force-on-Force test and evaluated nuclear security policy for waterfront restricted areas at Naval Base Kings Bay, GA. - Initiated 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 377th Air Base Wing, Kirtland AFB, NM. - Conducted research, development, test, and evaluation of 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 - 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 377th Air Base Wing Headquarters, Albuquerque, NM. - Conduct research, development, test, and evaluation on physical security technologies designed to enhance protection of the nuclear stockpile as determined by the Services. ***FY 2014 Plans:*** - Test and characterize radiation effects on advanced technology testing and characterization. - Conduct engineering studies in support of and plan for Mighty Guardian XVII Force-on-Force test to evaluate nuclear security policy for Navy Limited Areas at Strategic Weapons Facility Pacific, NSB Kitsap, and Washington. - 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	5.388	6.129	6.016

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
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 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• 25/0602718BR: *WMD Defeat Technologies*	19.606	18.810	21.041		21.041	22.289	23.241	23.261	23.658	Continuing	Continuing

Remarks

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 2014 Defense Threat Reduction Agency			DATE: April 2013
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COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
RL: *Nuclear & Radiological Effects*	2.661	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

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. This project consolidates validated Defense Threat Reduction Agency modeling tools into a net-centric environment for integrated functionality; predicts 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; provides detailed adversary nuclear infrastructure characterization to enhance counterforce operations and hazard effects; conducts analyses in support of nuclear and radiological Science and Technology and addresses the priority needs of the Combatant Commands and the Department of Defense; develops and provides 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 2012	FY 2013	FY 2014
Title: RL - Nuclear & Radiological Effects	0.000	0.000	0.000
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 2012 Accomplishments: N/A			
Accomplishments/Planned Programs Subtotals	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• 25/0602718BR: *WMD Defeat Technologies*	25.783	25.752	35.741		35.741	37.284	37.888	38.297	38.824	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
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 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• 124/0605000BR: *WMD Defeat Capabilities*	5.750	5.749	5.995		5.995	6.077	8.359	8.541	8.694	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency			DATE: April 2013
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 Counterforce Technologies*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
RM: *WMD Counterforce Technologies*	29.143	23.735	22.503	29.420	-	29.420	31.893	33.971	34.523	35.108	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

Note

*RM Project title change from Battle Management starting in FY 2014

A. Mission Description and Budget Item Justification

The Weapons of Mass Destruction (WMD) Counterforce Technologies 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 (COCOM) 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.

This project supports the National Strategy for Countering Biological Threat priority/focus area 1) Global Health Security and 3) Capability Expansion. The DTRA initiated a Bio Intelligence, Surveillance, and Reconnaissance (ISR) Initiative to develop technologies and tactics that improve the national ability to search for, detect, and identify biological terrorist threats before release. This initiative will develop layered sensing technologies that can be used within a fused approach to enhance the detection of biological threats. The intent is to provide a capability to narrow the area of interest so that a localized search can be accomplished using collection, in-field confirmatory, and close in Bio-threat analysis technologies.

The Technical Reachback support provides 24 hour/7 days per week information and analyses on potential impacts of a WMD event to Warfighters and First Responders in consult with DTRA's Combating WMD Research and Development subject matter experts. This effort develops and integrates capabilities and processes to support WMD effects and consequences, to include secondary and tertiary effects.

The decrease from FY 2012 to FY 2013 is predominately due to termination of DTRA's Near Real Time Battle Damage Assessment Program for Global Strike.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
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 Counterforce Technologies*

The increase from FY 2013 to FY 2014 is predominately due to increased investment in WMD Intelligence, Surveillance, and Reconnaissance activities and the consolidation of Reachback Support operations from Project RA-Information Science and Applications.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: RM: WMD Counterforce Technologies	23.735	22.503	29.420

Description: Project RM (WMD Counterforce Technologies) provides (1) full-scale testing of counter WMD weapon effects, sensor performance, and weapon delivery optimization, (2) weapon effects modeling, and (3) the DTRA Experimentation Lab.

FY 2012 Accomplishments:
- Supported the Combatant Commands with the further refinement and development of operation center critical technologies that will enhance the capability of rapid response in relation to next generational reachback capabilities.
- Conducted 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).
- Initiated the design of WACS prototypes for the U.S. Army that will meet the Army's end-state, fully integrated WACS capability.
- Developed and demonstrated novel tag technologies for C-WMD Tag, Track and Locate Program.
- Provided Targeting and Weaponeering Analysis Cell (TWAC) academic sessions and targeting recommendation packages supporting Combatant Command (COCOM) requirements.
- Began the effort to integrate first principle nuclear fallout modeling codes into Graphic User Interface (GUI) based hazard prediction models.
- Delivered critical updates to IMEA 2010 conventional and nuclear weapons effects prediction capabilities.
- Developed and demonstrated Integrated Munitions Effects Assessment (IMEA) version 11.0 with new site-level attack capability.
- Completed integration of agent release and dispersion models from AF Nuclear Weapon Center's SERPENT agent defeat analysis tool into IMEA for enhanced WMD defeat planning capability.
- Delivered IMEA weapons effects models for cratering and fragment environment for future integration into a component of the Joint Munitions Effects Manual (JMEM) Weaponeering System; models received accreditation by the Joint Technical Coordinating Group for Munitions Effectiveness (JTCG/ME).
- Completed system assessment of the Battle Damage Assessment (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.

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 relation to next generational reachback capabilities.
- Continue the effort to integrate first principle nuclear fallout modeling codes into GUI-based hazard prediction models.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
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 Counterforce Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
- Provide TWAC academic sessions and targeting recommendation packages supporting Combatant Command (COCOM) requirements. - Deliver Vulnerability Assessment Protection Option (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 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.			
FY 2014 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 relation to next generational reachback capabilities. - Complete the effort to integrate first principle nuclear fallout modeling codes into GUI-based hazard prediction models. - Continue development of capability to model secondary and tertiary effects supporting optimal course of action and tactical decisions for WMD operations, including power and communication infrastructure. - Begin development of technologies and methods for comprehensive WMD consequence assessment to potentially include PMESII (Political, Military, Economic, Social, Infrastructure, and Information) implications – will support USSTRATCOM's consequence of execution analyses. - Deliver IMEA 11.1 (Near Miss Lethality/Multi-Hit/Ultra-High Performance Concrete (UHPC) Penetration/LCP Enhancements). - Deliver VAPO 6.1 (Improved Blast Model/Glass Curtain Wall Model). - Deliver TWAC academic sessions and targeting recommendation pages supporting COCOM requirements. - Demonstrate Silent Scout Chemical/Rad Sensor Delivery – Other Government Agency (OGA). - Demonstrate Nano-scale Transformational Rad Tag. - Continue WACS and Army Shadow UAS integration efforts and Air Worthiness Certification. - Develop WMD Intelligence, Surveillance and Reconnaissance (ISR) system architecture. - Conduct WMD ISR +signature characterization and phenomenology research. - Continue development and integration of agent based modeling capabilities, including secondary and tertiary effects linked with social behavior resulting from WMD insult. - Develop parallel version of transport and dispersion code to allow faster and more complex data analysis execution on high performance computing resources.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
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 Counterforce Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
- Support requests for information providing technical advisory reachback support on WMD effects and consequences – expected workload of over 1,600 requests for information.			
Accomplishments/Planned Programs Subtotals	23.735	22.503	29.420

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• 23/0602718BR: *WMD Defeat Technologies*	16.089	18.969	16.617		16.617	16.919	17.032	17.137	17.458	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

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 2014 Defense Threat Reduction Agency			DATE: April 2013
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)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
RR: *Test Infrastructure*	1.790	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

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 above ground 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 2012	FY 2013	FY 2014
Title: RR - Test Infrastructure	0.000	0.000	0.000
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 2012 Accomplishments:*** N/A			
Accomplishments/Planned Programs Subtotals	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
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*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• 23/0602718BR: *WMD Defeat Technologies*	16.641	13.782	14.591		14.591	14.867	15.460	16.057	16.337	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency			DATE: April 2013
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)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
RT: *Target Assessment Technologies*	35.047	36.198	31.298	28.141	-	28.141	29.267	30.152	30.936	31.596	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

For some Weapons of Mass Destruction (WMD) targets and hard and deeply buried targets (HDBTs), physical destruction may not be possible, practical, or desirable with current conventional weapons and employment techniques. It may be possible or preferable, to achieve operational objectives by denying or disrupting the mission or function of the target facility. Functional defeat, however, requires extensive and highly 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 defeat mechanisms, planning and executing an attack, assessing damage, and if necessary, suppressing reconstitution efforts and re-attacking the facility. Target Assessment Technologies develops for the Combatant Commands (COCOMs) and the Intelligence Community (IC) the analytical tools and process required to find and characterize WMD targets and HDBTs and then, in near-real-time, assessing 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. Applying these processes to WMD time-dependent target characterization and threat analysis present a further technical challenge. The Target Assessment Technologies project is meeting this challenge through 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 Development.

Program RT supports the National Strategy for Countering Biological Threat priority/focus area 3) Capability Expansion and 4) Leveraging Science. The Counter WMD Analysis Cell (C-WAC) technology development program has cooperative Research and Development projects with the United Kingdom and Commonwealth nations. The C-WAC is developing information sharing means with Commonwealth nations. The C-WAC project is also developing the Bio Dual-Use Support Tool as an aid in discriminating the employment of dual use technologies in the disguised development of bio warfare capabilities.

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.

The decrease from FY 2013 to FY 2014 is predominately due to decreased investment in development of tools for the analysis of chemical weapons threats, decreased investment in the development and integration of sensor systems for target characterization and assessment, and the realignment of test bed facilities to RR-Test Infrastructure in PE 0602718BR to better reflect the nature of those activities.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
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 2012	FY 2013	FY 2014
Title: RT: Target Assessment Technologies	36.198	31.298	28.141

Description: Project RT (Target Assessment Technologies) provides the Combatant Commands and the Intelligence Community with technologies and processes to find and characterize WMD targets and hard and deeply buried targets (HDBTs) and then assess the results of attacks against those targets.

FY 2012 Accomplishments:
- Demonstrated 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).
- Demonstrated Integrated Sensor System (ISS) sensor mission planning and data fusion capabilities as part DTRA's Integrated Technology Demonstration 1 (ITD-1).
- Developed and demonstrated C-WAC capability to perform strategic level analysis of adversary WMD programs in support of the Intelligence Community (IC) and COCOMS.
- Developed and demonstrated an Underground Targeting and Analysis System (UTAS) version that combines buildings, bunkers and tunnels into a common operating picture (COP) for support of IC and COCOM target analysis. Deliverables delayed until September 2013 due to UTAS time required to fix unexpected software problems.
- Demonstrated a UTAS version that integrates analysis of facilities and WMD functional process models for enhanced functional characterization of WMD targets.
- Continued target characterization training for the UGF and WMD target defeat communities.

FY 2013 Plans:
- Demonstrate 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 thermal WMD process analysis and characterization.
- Continue target characterization technical training for the UGF and WMD target defeat communities.

FY 2014 Plans:
- Demonstrate Denied Area Persistent Sensor System (DAPSS) enhanced yield detection/discrimination capability.
- Develop a chemical/biological virtual laboratory model for support of foreign weapons program analysis.
- Collect data and then develop an evaporative cooling analytical validation and verification model for support of the UTAS thermal analysis capability.
- Demonstrate an initial thermal process model interface for UTAS.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
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 2012	FY 2013	FY 2014
- Provide target characterization training for the UGF and WMD target defeat communities.			
Accomplishments/Planned Programs Subtotals	36.198	31.298	28.141

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• 23/0602718BR: *WMD Defeat Technologies*	0.000	0.000	0.000		0.000	0.000	0.000	0.000		Continuing	Continuing

Remarks

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

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 2014, 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 2014, 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 2014, demonstrate improved sensor-on-node data fusion capability.

By the end of FY 2014, improve DoD's ability to analyze adversary WMD development capability through C-WAC modeling and analysis.