Department of Defense
Fiscal Year (FY) 2013 President's Budget Submission

February 2012

Defense Threat Reduction Agency

Justification Book

Research, Development, Test & Evaluation, Defense-Wide

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Defense-Wide
FY 2013 President's Budget
Exhibit R-1 FY 2013 President's Budget
Total Obligational Authority
(Dollars in Thousands)

25 Jan 2012

Appropriation: 0400D Research, Development, Test & Eval, DW

Line No	Program Element Number	Item	Act	FY 2011 Actuals	FY 2012 Base	FY 2012 OCO	FY 2012 Total	Sec
1	0601000BR	DTRA Basic Research Initiative	01	46,107	47,737		47,737	U
		Basic Research		46,107	47,737		47,737	
23	0602718BR	Weapons of Mass Destruction Defeat Technologies	02	197,984	196,083		196,083	U
		Applied Research		197,984	196,083		196,083	
28	0603160BR	Counterproliferation Initiatives - Proliferation Prevention and Defeat	03	301,571	283,073		283,073	U
		Advanced Technology Development (ATD)		301,571	283,073		283,073	
121	0605000BR	Weapons of Mass Destruction Defeat Capabilities	05	7,826	5,888		5,888	U
		System Development and Demonstration (SDD)		7,826	5,888		5,888	
153	0605502BR	Small Business Innovation Research	06	7,888				U
		RDT&E Management Support		7,888				
Total Research, Development, Test & Eval, DW				561,376	532,781		532,781	

R-1C: FY 2013 President's Budget (Published Version), as of January 25, 2012 at 08:46:38

Defense-Wide
FY 2013 President's Budget
Exhibit R-1 FY 2013 President's Budget
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		Basic Research		45,071		45,071	
23	0602718BR	Weapons of Mass Destruction Defeat Technologies	02	172,352		172,352	U
		Applied Research		172,352		172,352	
28	0603160BR	Counterproliferation Initiatives - Proliferation Prevention and Defeat	03	275,022		275,022	U
		Advanced Technology Development (ATD)		275,022		275,022	
121	0605000BR	Weapons of Mass Destruction Defeat Capabilities	05	5,749		5,749	U
		System Development and Demonstration (SDD)		5,749		5,749	
153	0605502BR	Small Business Innovation Research	06				U
		RDT&E Management Support					
Total Research, Development, Test & Eval, DW				498,194		498,194	

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Program Element Table of Contents (by Budget Activity then Line Item Number)

Budget Activity 01: Basic Research
Appropriation 0400: Research, Development, Test & Evaluation, Defense-Wide

Budget Activity 02: Applied Research
Appropriation 0400: Research, Development, Test & Evaluation, Defense-Wide

Budget Activity 03: Advanced Technology Development (ATD)
Appropriation 0400: Research, Development, Test & Evaluation, Defense-Wide

Budget Activity 05: Development & Demonstration (SDD)
Appropriation 0400: Research, Development, Test & Evaluation, Defense-Wide

Budget Activity 06: RDT&E Management Support
Appropriation 0400: Research, Development, Test & Evaluation, Defense-Wide

Program Element Table of Contents (Alphabetically by Program Element Title)

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

Appropriation: RDT&E, Defense-Wide **Date: February 2012**

OVERVIEW

DTRA's mission is to safeguard the United States (US) from global WMD threats by integrating, synchronizing and providing expertise, technologies, and capabilities across all operating environments. DTRA's FY 13-17 PBS and its mission are aligned with overarching guidance in the NSS, the QDR, the Nuclear Posture Review (NPR), and the National Strategy for Countering Biological Threats (NSCBT), and the National Strategy to Combat Weapons of Mass Destruction. Furthermore, the Agency supports DoD's strategic CWMD priorities as well as requirements articulated in the Guidance for the Employment of the Force, the FY 12-16 Defense Planning and Programming Guidance (DPPG), the Strategic Global Assessment, the Joint Strategic Capabilities Plan, and Combatant Commanders' Global Campaign Plans, Contingency Plans, and Theater Campaign Plans.

The Agency's PBS also applies recommendations from key studies and assessments to inform program and resource decisions. These studies and assessments include the 2010 Combat Support Agency Review Team Assessment, the 2009 National Academy of Sciences report on Global Security Engagement, and the Biennial Review of Defense Agencies.

DTRA's budget request responds to warfighter needs and supports its chartered responsibilities and national commitments. These focus on: support to the Combatant Commands (COCOMs); arms control treaty obligations; international cooperative efforts to interdict WMD; Cooperative Threat Reduction (CTR) programs both inside and outside of the former Soviet Union (FSU); nuclear deterrence support; research and development (R&D) across the Chemical, Biological, Radiological, Nuclear, and High-yeild Explosives (CBRNE) spectrum; and support to other US Government (USG) agencies. DTRA invests in focused science and technology R&D efforts to meet the above responsibilities, commitments, and next-generation CWMD needs.

DTRA's RDT&E critical focus areas are programmed to: modernize WMD defense capabilities to provide broad-spectrum, flexible solutions and multi-use technologies to counter post cold-war threats; develop technological solutions to provide timely information to the warfighter, increase the probability of surviving attack, and speed the recovery from any such attack; collaborate across the DoD and intelligence community to fully synchronize CWMD technical and analytic capabilities and functions; apply a comprehensive systems approach to integrate cross-functional CBRN enabling technologies in modeling and simulation, persistent intelligence, surveillance and reconnaissance, and data to decision support tools; and, build international capacity to prevent, reduce, and respond to WMD threats globally through international S&T engagement.

The FY 2013 DTRA Budget Request reflects reductions in travel, contractor services, printing and reproduction consistent with Department efficiencies.

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Acronyms

ACES	Arms Control Enterprise System
AI	Active Interrogation
APOM	Amended POM
AOR	Area of Responsibility
APIX	Airborne Persistent Imagery eXploitation
ARIEL	Autonomous Reconnaissance Infrared Electro-optical Loitering
ASIC	Application Specific Integrated Circuit
ASCO	Advanced Systems Concepts Office
ATAC	Advanced Targeting Assessment Capability
ATD	Advanced Technology Development
AUV	Autonomous Underwater Vehicle
BAA	Broad Agency Announcement
BDA	Battle Damage Assessment
BDI	Battle Damage Information
BLADE	BDI Link Advanced Demonstrator
BLU	Bomb, Live Unit
CAPE	Capability Assessment and Program Evaluation
CBRNE	Chemical, Biological, Radiological, Nuclear, and High-yield Explosives
CFD	Computational Fluid Dynamics
CHAMP	Counter Electronics High Power Microwave Advanced Missile Project
CIO	Chief Information Officer
CNDSP	DTRA Computer Network Defense Service Provider
COCOM	Combatant Command
CoE-NI	Consequence of Execution – Nuclear Integration
COI	Community of Interest
CONOPS	Concept of Operations

CONPLAN	Concept of Operation Plan
CONUS	Continental United States
COOP	Continuity of Operations
CP	Counter-proliferation
CSM	Computational Structure Mechanics
CT/CP	Counterterrorism / Counterproliferation
CTR	Cooperative Threat Reduction
C-WAC	Counter-WMD Analysis Center
CWMD	Combating Weapons of Mass Destruction
CWMD-T	Combating Weapons of Mass Destruction –Terrorism
CZT	Cadmium zinc telluride
DARPA	Defense Advanced Research Projects Agency
DEL	DTRA Experimentation Lab
DHS	Department of Homeland Security
DIAMONDS	Defense Integration and Management of Nuclear Data Services
DIOCC/DIA	Defense Intelligence Operations Coordination Center/Defense Intelligence Agency
DITEC	DTRA Integration Technical Experimentation Center
DNDO	Domestic Nuclear Detection Office
DoD	Department of Defense
DOE	Department of Energy
DPG	Dugway Proving Ground
DPOE	Dynamic Picture of the Operating Environment
DRDC	Defence Research and Development Canada
DSP	Digital Signal Processing
DSWA	Defense Special Weapons Agency
DT&E	Development, Testing and Evaluation

DTRA	Defense Threat Reduction Agency
DTSA	Defense Technology Security Administration
EHF	Extremely High Frequency
EMP	Electromagnetic Pulse
EOD	Explosive Ordnance Disposal
EPA	Environmental Protection Agency
EXCALIBUR	Explicit Calculations of Interacting Blocks Under Rapid Loading
FFRDC	Federally Funded Research and Development Center
FINDER	Flight Inserted Detector Expendable for Reconnaissance
FOC	Full Operational Capability
GDF	Global Development of Forces
GEF	Guidance for Employment of the Force
GIG	Global Information Grid
GNDS	Global Nuclear Defense System
GUI	Graphical User Interface
HAMMER	Heated And Mobile Munitions Employing Rockets
HANE	High Altitude Nuclear Environments
HEMP	High Altitude Electro Magnetic Pulse
He3-RT	Helium 3 Replacement Technology
HDBT	Hard and Deeply Buried Targets
HPAC	Hazard Prediction and Assessment Capability
HPC	High Performance Computing
HPM	High Power Microwave
HSC	High Strength Concrete
HTD	Hard Target Defeat
IBRD	Interagency Biological Restoration Demonstration
IED	Improvised Explosive Device

IMEA	Integrated Munitions Effects Assessment
IND	Improvised Nuclear Device
INDRAC	Interagency CWMD Database of Responsibilities, Authorities, and Capabilities
IOC	Initial Operational Capability
IPODS	Integrated Precision Ordnance Delivery System
ISIS	Integrated Standoff Inspection System
ISR	Intelligence, Surveillance, Reconnaissance
ISS	Integrated Sensor System
IT	Information Technology
ITD	Integrated Technology Demonstration
IWMDT	Integrated Weapons of Mass Destruction Toolset
JAIEG	Joint Atomic Information Exchange Group
JCDE	Joint Concept Development & Experimentation
JCTD	Joint Concept Technology Demonstration
JDAM	Joint Direct Attack Munition
JECE	Joint Elimination Coordination Element
JEM	Joint Effects Model
JMEWS	Joint Multi-Effects Warhead System
JIPOE	Joint Intelligence Preparation of the Operational Environment
JSAF	Joint Semi-Automated Forces
JSIVA	Joint Staff Integrated Vulnerability Assessments
KAFB	Kirtland Air Force Base
LIBS	Laser Induced Breakdown Spectroscopy
LMSI	Lower Manhattan Security Initiative
LTS	Large Test Structure
MACS	Modular Autonomous Countering WMD System
MAV	Micro Air Vehicle

MCNP	Monte Carlo N-Particle
MDA	Missile Defense Agency
M&S	Modeling and Simulation
MFK-R	Mobile Field Kit – Radiological
MIMS	Metastable Innershell Molecular State
MMUAS	Multi-Mission Unmanned Aerial Systems
MOP	Massive Ordnance Penetrator
NATO	North Atlantic Treaty Organization
NCPC	National Counterproliferation Center
NIF	National Ignition Facility
NLGC	Nunn Lugar Global Cooperation
NMS	National Military Strategy
NMSP	National Military Strategic Plan
NNSA	National Nuclear Security Administration
NNSS	Nevada National Security Site
NPR	Nuclear Posture Review
NRTRS	Near Real Time Reachback Support
NSS	National Security Strategy
NST	New START Treaty
NTNF	National Technical Nuclear Forensics
NTPR	Nuclear Test Personnel Review
NuCS	Nuclear Capability Services
NWE	Nuclear Weapon Effects
NWEC	Nuclear Weapon Effects Center
NWED	Nuclear Weapons Effects Database
NWEN	Nuclear Weapons Effects Network

NWRM	Nuclear Weapons Related Materiel
OCO	Overseas Contingency Operations
OCONUS	Outside the Continental United States
O&M	Operations and Maintenance
OPCW	Organization for the Prohibition of Chemical Weapons
OSCAR	Occluding Six-Crystal Array
OSD CAPE	Office of the Secretary of Defense Capability Assessment and Program Evaluation
OSD-NM	Office of the Secretary of Defense, Nuclear Matters Office (in the office of the Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs)
OSIA	On-site Inspection Agency
P-ISR	Persistent Intelligence, Surveillance, and Reconnaissance
PITAS	Photonuclear Inspection and Threat Analysis System
PNAF	Prime Nuclear Airlift Forces
QRC	Quick Reaction Capability
R2TD	Rapid Reaction Tunnel Detection
RDD	Radiological Dispersion Device
R&D	Research and Development
RadHard	Radiation Hardened
RFIS	Robust Fuzewell Instrumentation System
RHBD	Radiation Hardened by Design
RHM	Radiation Hardened Microelectronics
RHOC	Radiation Hardened Oversight Council
SBIR	Small Business Innovative Research
SCC WMD	USSTRATCOM Center for Combating Weapons of Mass Destruction
SCSP	USSOCOM Combating Weapons of Mass Destruction – Terrorism Support Program
SHAMRC	Second-order Hydrodynamic Automatic Mesh Refinement Code
SHAPE	Supreme Headquarters Allied Powers, Europe

SNM	Special Nuclear Material
SOF	Special Operation Forces
SOX	Standoff Operational Exercise
SREMP	Source Region Electromagnetic Pulse
START	Strategic Arms Reduction Treaty
STC	Secure the Cities
STIRS	Smart Threads Integrated Radiological Sensors
TACBRD	TransAtlantic Collaboration Biological Resiliency Demo
TACSAT	Technical Satellite
TDFD	Timed Delay Firing Device
TEAMS	Technical Evaluation Assessment and Monitor Site
TNF	Technical Nuclear Forensics
TOA	Total Obligation Authority
TRAC	Threat Reduction Advisory Committee
TRL	Technology Readiness Level
TSG	Technical Support Group
TTL	Tag, Track, Locate
TWAC	Targeting and Weaponeering Analysis Cell
UAS	Unmanned Aerial Systems
UAV	Unmanned Aerial Vehicle
UCP	Unified Command Plan
UGF	Underground Facility
UGT	Underground Test
UHF	Ultra-High Frequency
UHPC	Ultra-High Performance Concrete
URM	Universal Rock Model
USANCA	U.S. Army Nuclear and Combating WMD Agency

USEUCOM	U.S. European Command
USNORTHCOM	U.S. Northern Command
USP	University Strategic Partnership
USPACOM	U.S. Pacific Command
USSOCOM	U.S. Special Operations Command
USSTRATCOM	U.S. Strategic Command
UTAS	Underground Targeting and Analysis System
VAPO	Vulnerability Assessment Protection Option
VOIP	Voice Over Internet Protocol
WACS	WMD Aerial Collection System
WCF	West Coast Facility
WEP	Weapon Effects Phenomenology
WESC	Weapon Effects Steering Committee
WMD	Weapons of Mass Destruction
WSMR	White Sands Missile Range

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 1: *Basic Research*				R-1 ITEM NOMENCLATURE PE 0601000BR: *DTRA Basic Research Initiative*							
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	46.107	47.737	45.071	-	45.071	45.493	45.925	46.757	47.602	Continuing	Continuing
RU: *Fundamental Research for Combating WMD*	46.107	47.737	45.071	-	45.071	45.493	45.925	46.757	47.602	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Defense Threat Reduction Agency (DTRA) safeguards America and its allies from Weapons of Mass Destruction (chemical, biological, radiological, nuclear, and high explosives) by providing capabilities to reduce, eliminate, counter the threat, and mitigate its effects. The Basic Research Initiative program provides for the discovery and development of fundamental knowledge and understanding by research performers drawn primarily from academia and world-class research institutions in government and industry. This leverages Department of Defense's $2 billion annual investment in basic research by ensuring a motivation within the scientific community to conduct research benefiting Weapons of Mass Destruction-related defense missions and by improving Agency knowledge of other research efforts of potential benefit to DTRA nonproliferation, counterproliferation and consequence management efforts.

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

The decrease from FY 2012 to FY 2013 is predominately due to a reduction in the number of grants awarded and the elimination of dedicated support to transition discoveries to DTRA applied research.

Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Defense Threat Reduction Agency	DATE: February 2012
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B. Program Change Summary ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
Previous President's Budget	47.412	47.737	48.071	-	48.071
Current President's Budget	46.107	47.737	45.071	-	45.071
Total Adjustments	-1.305	-	-3.000	-	-3.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.014	-			
• FFRDC Reduction	-0.050	-	-	-	-
• Economic Assumption Reduction	-0.241	-	-	-	-
• Programmatic - Fiscal Guidance Adjustment	-	-	-3.000	-	-3.000

Change Summary Explanation

The decrease from the previous President's Budget submission in FY 2011 is due to the Federally Funded Research and Development Center (FFRDC) and the Economic Assumption reductions, and the SBIR transfer. The FY 2013 decrease from the previous President's Budget is predominately due to a reduction in the number of grants awarded and the elimination of dedicated support to transition discoveries to DTRA applied research.

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 1: *Basic Research*	R-1 ITEM NOMENCLATURE PE 0601000BR: *DTRA Basic Research Initiative*	PROJECT RU: *Fundamental Research for Combating WMD*	

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
RU: *Fundamental Research for Combating WMD*	46.107	47.737	45.071	-	45.071	45.493	45.925	46.757	47.602	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project provides for the discovery and development of fundamental knowledge and understanding by research performers drawn primarily from academia and world-class research institutions in government and industry. This leverages the Department of Defense's (DoD) $1 billion annual investment in basic research by ensuring a motivation within the scientific community to conduct research benefiting Weapons of Mass Destruction-related defense missions and by improving Agency knowledge of other research efforts of potential benefit to Defense Threat Reduction Agency (DTRA) nonproliferation, counterproliferation and consequence management efforts.

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
Title: Project RU: Fundamental Research for Combating WMD	46.107	47.737	45.071
FY 2011 Accomplishments: - Expanded the basic research portfolio to a total of 242 active basic research awards to 107 universities and laboratories across 37 states and 2 countries to include Canada and the UK. The Agency's 6.1 basic research portfolio supports the Combating Weapons of Mass Destruction (CWMD) grand challenge for the DoD, and is capitalized at 8.5% of the DTRA Science & Technology (S&T) investment. - Supported 381 Principal Investigators, 535 students and 120 post-doctoral researchers which published 340 peer reviewed articles, 572 presentations and submitted 25 patent applications. - Conducted a technical review assessing each grant's scientific advancements and progress in meeting technical objectives. The review included 240 technical presentations and was attended by 639 people fostering collaboration and building relationships within the scientific community. - Conducted an external panel review of the basic research program that was open to DoD research stakeholders, which assessed the focus and scope of the program with respect to the CWMD challenges, and assessed the coordination of CWMD basic research across DoD mission space and across the broader basic research community to avoid unintended duplication and ensure successful partnerships.			
FY 2012 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency		DATE: February 2012
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Program expected to be managing over 200 active basic research awards on a three to five year cycle. The Agency's 6.1 basic research portfolio is expected to continue the CWMD grand challenge for the DoD, and be capitalized at approximately 8-10% of the DTRA research and development investment. - Plan to conduct a technical review of each grant to assess the scientific advancements and progress in meeting the award's technical objectives and to foster collaboration and build relationships within the scientific community. - Plan to conduct an external panel review of the basic research program, which will be open to DoD research stakeholders, to assess the focus and scope of the program with respect to the CWMD challenges, and to assess the coordination of CWMD basic research across DoD mission space and across the broader basic research community to avoid unintended duplication and ensure successful partnerships. ***FY 2013 Plans:*** - Program expected to be managing over 160 active basic research awards on a three to five year cycle. The Agency's 6.1 basic research portfolio is expected to continue the CWMD grand challenge for the DoD and to be capitalized at approximately 8-10% of the DTRA S&T investment. - Support the development of the future Science, Technology, Engineering and Mathematics workforce by supporting world-class talent in WMD research at universities and laboratories. - Conduct an annual technical review of each grant to assess the scientific advancements and progress in meeting the award's technical objectives and to foster collaboration and build relationships within the scientific community. - Conduct an annual external panel review of the basic research program, which will be open to DoD research stakeholders, to assess the focus and scope of the program with respect to the CWMD challenges, and to assess the coordination of CWMD basic research across DoD mission space and across the broader basic research community to avoid unintended duplication and ensure successful partnerships.			
Accomplishments/Planned Programs Subtotals	46.107	47.737	45.071

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*	7.961	8.631	2.000		2.000	0.516	0.567	0.549	0.549	Continuing	Continuing

D. Acquisition Strategy

Procurement methods include in-scope award through Defense Threat Reduction Agency University Strategic Partnership, collaborative funding through other organizations, and competitive award through Broad Agency Announcement.

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency		DATE: February 2012
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E. Performance Metrics

Project performance is measured via a combination of statistics including the number of publications generated, number of students trained in sciences and engineering supporting Department of Defense educational goals, number of research organizations participating, and percentage of participating universities on the US News & World Report “Best Colleges” list.

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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 2: *Applied Research*				R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat 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**
Total Program Element	197.984	196.083	172.352	-	172.352	170.483	174.084	177.832	180.828	Continuing	Continuing
RA: *Systems Engineering and Innovation*	44.923	41.456	33.396	-	33.396	31.924	32.454	32.780	33.152	Continuing	Continuing
RE: *Counter-Terrorism Technologies*	15.946	-	-	-	-	-	-	-	-	Continuing	Continuing
RF: *Detection Technology*	43.697	49.677	44.998	-	44.998	47.223	47.722	48.417	49.330	Continuing	Continuing
RG: *Advanced Energetics & Counter WMD Weapons*	18.432	17.771	14.645	-	14.645	14.750	13.595	13.521	14.004	Continuing	Continuing
RI: *Nuclear Survivability*	18.525	17.503	18.810	-	18.810	18.965	20.142	21.428	21.490	Continuing	Continuing
RL: *Nuclear & Radiological Effects*	15.891	25.343	25.752	-	25.752	23.904	25.202	25.539	25.964	Continuing	Continuing
RM: *WMD Battle Management*	18.255	13.761	18.969	-	18.969	19.066	19.988	20.593	20.729	Continuing	Continuing
RR: *Test Infrastructure*	13.509	21.941	13.782	-	13.782	14.135	14.414	15.005	15.610	Continuing	Continuing
RT: *Target Assessment Technologies*	0.845	-	-	-	-	-	-	-	-	Continuing	Continuing
RU: *Fundamental Research for Combating WMD*	7.961	8.631	2.000	-	2.000	0.516	0.567	0.549	0.549	Continuing	Continuing

A. Mission Description and Budget Item Justification

The mission of the Defense Threat Reduction Agency (DTRA) is to safeguard America and its allies from Weapons of Mass Destruction (WMD) by reducing the present threat and preparing for the future threat. This mission directly reflects several national and Department of Defense level guidance/vision documents to include the National Security Strategy, Unified Command Plan, National Strategy to Combat WMD, Counterproliferation Interdiction, National Strategy for Combating Terrorism, National Military Strategy, Global Development of Forces, Global Employment of Forces, National Military Strategy for Combating WMD, National Military Strategic Plan for the War on Terrorism, Joint Strategic Capabilities Plan (including the Nuclear Annex), and Nuclear Posture Review. To achieve this mission, DTRA has identified principal objectives along with strategies and tasks to ensure the objectives are met. Three of these objectives are to deter the use of WMD, reduce the present threat, and to prepare for the future threat. A focused and strong threat reduction technology base is critical to achieving these objectives and is closely tied with the operational support programs that make up its combat support mission. DTRA has taken the steps to develop this technology base and provide a foundation for transformational activities within the WMD arena.

Project RA provides systems engineering and analysis support across all other Projects, innovative counterproliferation research, and technical advisory reachback support on WMD effects and consequences.

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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*

Project RE provides research and development support to the U.S. Special Operations Command (USSOCOM) Combating Weapons of Mass Destruction – Terrorism Support Program (SCSP) to forecast plausible terrorist WMD threats for planning and conducting operations to combat WMD terrorism. Follow-on funding for this project can be found in the Proliferation Prevention and Defeat; 0603160BR, budget exhibit.

Project RF develops technologies, systems and procedures to detect, identify, track, tag, locate, monitor and interdict strategic and improvised nuclear and radiological weapons, components, or materials in support of 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.

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

Project RT 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. Follow-on funding for this project can be found in the Proliferation Prevention and Defeat; 0603160BR, budget exhibit.

Project RU provides (1) strategic studies to support DoD, (2) Decision support tools and analysis to support combating WMD research and development investments, and (3) early applied research for technology development.

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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*

B. Program Change Summary ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
Previous President's Budget	212.742	196.954	191.786	-	191.786
Current President's Budget	197.984	196.083	172.352	-	172.352
Total Adjustments	-14.758	-0.871	-19.434	-	-19.434
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-10.435	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.685	-			
• FFRDC Reduction	-0.227	-0.871	-	-	-
• Economic Assumption Reduction	-1.081	-	-	-	-
• Realignment	-1.330	-	0.688	-	0.688
• Programmatic - Fiscal Guidance Reduction	-	-	-23.198	-	-23.198
• Inflation	-	-	3.076	-	3.076

Change Summary Explanation

The decrease from the previous President's Budget submission in FY 2011 is the net effect of the Congressional Rescission, the Federally Funded Research and Development Center (FFRDC) reduction, the Economic Assumption reduction, and a transfer of funding to WMD Defeat Capabilities; 0605000BR for increased investment in the Joint Collaborative Analysis Module of the Integrated Weapons of Mass Destruction Toolset (IWMDT). The decrease from the previous President's Budget submission in FY 2013 is predominately due to decreased efforts in Advanced Energetics, University Strategic Partnerships, CWMD-T, Innovation, System Engineering, Test and Technology Support, DTRA Wargaming, Environmental Restoration Support and WMD National Test Bed.

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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	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*	44.923	41.456	33.396	-	33.396	31.924	32.454	32.780	33.152	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 development, 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. It also 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 innovative counterproliferation effort conducts research and development to investigate, identify, develop and transition short term, high payoff technologies from Defense Threat Reduction Agency (DTRA), other government agencies, industry, academia and international Science and Technology partners into the respective DTRA and other research and development programs and to end user organizations. The technical reachback effort provides 24 hours, 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 Counter-WMD science and technology cooperation through the DTRA London Office.

The decrease from FY 2012 to FY 2013 is predominantly due to reduced investment in systems engineering collaboration with external partners and customers and the slowing development and fielding of innovative technologies to the warfighter.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
Title: RA: Systems Engineering and Innovation	44.923	41.456	33.396
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:*** - Finalized operational capability for systems engineering decision support tools. Provided direct support to DTRA programs and projects for analyzing and determining key performance and key technical parameters to support investment strategies. - Continued requirements and gap analyses to enable research and development efforts to meet combating WMD capability gaps. Supported program and project managers by translating Agency goals and Concept of Operations into actionable products. - Completed 21st century nuclear threat assessment resulting in increasing our knowledge of current threats and providing a solid basis for future analysis. - Completed the Distributed Decision Support and Analysis architecture and Manufacturing Readiness Level Assessment studies vis-a-vis the DTRA Mission and active projects resulting in the development of refined analytical and systems engineering tools.			

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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RA: *Systems Engineering and Innovation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Completed Nuclear Enterprise architecture analysis resulting in the delivery of the Strategic Stockpile Force Structure Planning Tool. - Initiated three new systems-engineering based special projects focusing on the New START Treaty Arms Control Enterprise System, a new research and development portfolio management tool demonstrating radiological and nuclear stand-off detection technologies. - Solicited new innovative research projects resulting in ongoing development efforts for needed new technologies and increased end-user capabilities, while leveraging resources from other DoD and USG agencies. - Completed reconstructing the current networks to produce the DTRA Integration Technical Experimentation Center (DITEC) as an environment to test and assess new technologies and configuration changes. - Developed and integrated secure core infrastructure enhancements that remediate vulnerability issues. - Engineered and deployed full virtual infrastructure modeling and anomaly detection capability. - Successfully closed the Advanced Systems and Concepts Office (ASCO). - Completed proof-of-concept and development efforts in areas of enhanced remote access, collaboration, and virtualization technologies supporting WMD Analysis. - Demonstrated feasibility of virtualization of WMD Analysis support systems, some of which were rapidly provisioned to meet capability gaps in support of Operation Tomodachi. - Conducted code-based vulnerability assessments on DTRA-developed software. Findings presented to program office for remediation in future revisions.			
FY 2012 Plans: - Develop next generation WMD Analysis Reachback Tool capabilities. - Solicit at least 5 new innovative research projects focused on Chemical-Biological detection, Countering Weapons of Mass Destruction (CWMD) / Improvised Explosive Device and Special Nuclear Materials detection. - Continue requirements and gap analyses to enable research and development efforts to meet combating WMD capability gaps. Support program and project managers by translating Agency goals and Concept of Operations into actionable products. - Complete initial concept demonstrations for Standoff Detection in the Continental United States (CONUS) and Outside the Continental United States (OCONUS) environments to Combat WMD proliferation. - Facilitate Joint Concept Development & Experimentation (JCDE) for the CWMD Community of Interest. - Investigate and explore developmental technologies, such as Virtual Worlds. - Analyze, explore, and identify gaps, and barriers associated with CWMD Warfighter Challenges - Support STRATCOM requirements for an integrated strategic stockpile force structure planning tool. - Support Office of the Secretary of Defense Capability Assessment and Program Evaluation (OSD CAPE) with standoff nuclear detection analysis and modeling. - Perform analysis studies to predict new WMD threats.			

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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RA: *Systems Engineering and Innovation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Stimulate, identify, and execute high-impact projects to address long term resolution of WMD issues. - Provide long-range analytical support to the warfighter. - 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 Department of Defense (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. - Design and implementation of Mission Domain IT architecture. Includes migration and integration of current R&D IT capabilities leveraged by DTRA operational and combat support customers into the operational IT infrastructure. - Contract support to design, implement and manage the DTRA Integration, Test and Experimentation Center. - Provide capability to model, simulate and analyze existing DTRA systems, networks, enclaves and communications capabilities and perform regression testing for system changes and upgrades (including Information Assurance patches). - Building partner capacity through applied research to improve the security capabilities of our international partners.			
FY 2013 Plans: - Continue requirements and gap analyses to enable research and development efforts to meet combating WMD capability gaps. Support program and project managers by translating Agency goals and Concept of Operations into actionable products. - Support STRATCOM requirements for an integrated strategic stockpile force structure planning tool. - Integrate first person virtual environments into the suite of CWMD Modeling and Simulation capabilities. - Facilitate Joint Concept Development & Experimentation (JCDE) for the CWMD Community of Interest. - Integrate Joint Semi-Automated Forces (JSAF) mission planning, constructive analysis, and virtual training toolkit into the Integrated Weapons of Mass Destruction (WMD) Toolset (IWMDT). - Continue to support OSD-CAPE and OSD-Nuclear Matters office (NM) strategic planning efforts and force analyses. - Deploy advanced Countering WMD (CWMD) operational virtual/live training capabilities for Technical Support Group (TSG) and related DOE activities. - Integrate Defense Intelligence Operations Coordination Center/Defense Intelligence Agency (DIOCC/DIA) collection planning tools into NIMBLE ELDER mission capabilities. - Deploy 1st generation real time radiation modeling capabilities into DTRA Reachback support. - Continue to solicit new innovative research projects for developing needed new technologies and increased end-user capabilities (leveraging other DoD and USG resources where possible) focused on Chemical, Biological, Radiological, Nuclear, and High Explosives (CBRNE) detection, CWMD, Improvised Explosive Device detection and defeat, and/or Special Nuclear Materials detection. - 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 infrastructures.			

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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RA: *Systems Engineering and Innovation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Organize/conduct senior Combatant Command (COCOM), Interagency, and International workshops, symposiums, and table top exercises to address key national/international strategies for reducing/combating the WMD threat. - Refine and enhance WMD lessons learned process with international staff and across the other COCOMs, incorporating lessons learned from partner activities. - Develop and update DTRA Support Plan as directed in the Defense Planning and Programming Guidance (DPPG) to further the Combating WMD mission across all theaters while balancing DTRA assets and managing risks as prioritized within the Guidance for Employment of the Force (GEF). - 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 using various strategic research methodologies. Expand the use of Second Track Dialogues to meet future CWMD challenges. - Manage the Threat Reduction Advisory Committee (TRAC). - Build a professional network of up-and-coming professionals (post-BS/BA and pre-PhD) through effective management of the Bio Initiative for the Next Generation. - Complete modernization of infrastructure and extend enhanced enterprise services. - Complete documentation and architecture development for migrated mission systems. - Begin code-based vulnerability scanning and documentation. Expand capability to perform code analysis earlier in the develop life-cycle as well as interfacing passive code exploitation reporting to the DTRA Computer Network Defense Service Provider (CNDSP).			
Accomplishments/Planned Programs Subtotals	44.923	41.456	33.396

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
• 28/0603160BR: *Proliferation Prevention and Defeat*	4.815	13.641	7.455		7.455	8.448	9.215	9.771	9.946	Continuing	Continuing

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

Number of customer requests for data analysis compared to historical level.
Number of changes to investments based on systems engineering analyses.

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency		DATE: February 2012
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Number of exercise and operations supported.
Number of Defense Acquisition Workforce Improvement Act certified systems engineers.
New capabilities delivered and transitioned to operational capabilities.
Manage the strategic weapons stockpile and Nuclear Weapon-Related Materiel; maintain 100% accountability.
Mission Enclave moves from development to Initial Operational Capability (IOC).
Mission Enclave moves from IOC to Full Operational Capability (FOC) by FY13.
Segment architectures for the mission enclave and supported mission systems.
Integrate segment architectures into the DTRA Enterprise Architecture.
Development of network modeling and system-in-the-loop testing capabilities within the DTRA Integration, Test and Experimentation Center (DITEC).

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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	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*	15.946	-	-	-	-	-	-	-	-	Continuing	Continuing

A. Mission Description and Budget Item Justification

The USSOCOM Combating Weapons of Mass Destruction – Terrorism Support Program (SCSP) supports processes to forecast plausible terrorist WMD threats for planning and conducting operations to combat WMD terrorism. The SCSP specifically 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.

Follow-on funding for this project can be found in the Proliferation Prevention and Defeat; 0603160BR, budget exhibit.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
Title: RE: Counter-Terrorism Technologies	15.946	-	-
Description: Project RE provides research and development support to the U.S. Special Operations Command (USSOCOM) Combating Weapons of Mass Destruction – Terrorism Support Program (SCSP) to forecast plausible terrorist WMD threats for planning and conducting operations to combat WMD terrorism. Follow-on funding for this project can be found in the Proliferation Prevention and Defeat; 0603160BR, budget exhibit. ***FY 2011 Accomplishments:*** - 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) to accommodate data analysis processing and network conductivity. - SCSP provided WMD data to COCOMs to support real-time contingency planning.			
Accomplishments/Planned Programs Subtotals	15.946	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RE: *Counter-Terrorism Technologies*

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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	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*	43.697	49.677	44.998	-	44.998	47.223	47.722	48.417	49.330	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 support to the attribution process through development, demonstration, and transition of improved post-detonation National Technical Nuclear Forensics operational 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-site and off-site analysis to meet forensic, verification, monitoring and confidence-building requirements.

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 is predominately due to the redirection of the nuclear detection portfolio toward a more holistic nuclear THREAT detection portfolio that integrates both passive and active radiation detection into a comprehensive Intelligence, Surveillance, and Reconnaissance (ISR) solution. This resulted in a decreased investment in advanced detector technology to fund increased investment in nuclear weapons effects in Project RI - Nuclear Survivability and system vulnerability and assessment capabilities in Project RL - Nuclear and Radiological Effects.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
Title: RF: Detection Technology	43.697	49.677	44.998
Description: Project RF develops technologies, systems and procedures to detect, identify, track, tag, locate, monitor and interdict strategic and improvised nuclear and radiological weapons, components, or materials in support of 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. This standoff active interrogation system will also provide a new reference standard for evaluating progress and capabilities in standoff detection and warning of hidden and shielded nuclear material. - Performed 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.			

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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RF: *Detection Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Continued to improve performance of new detector materials, imaging and spectroscopy systems, and signals analysis methods through rigorous field testing. - Continued to develop fieldable and improved technical capabilities for post-detonation prompt diagnostics, ground and airborne 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 projects to improve prompt diagnostics capabilities under projects DISCREET OCULUS and MINIKIN ECHO to demonstrate and field a prototype 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. - Began 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 sample collection capabilities in support of the FY2010-initiated National Technical Nuclear Forensics (NTNF) Joint Capability Technology Demonstration (JCTD) - Investigated the use of muon and proton beams for standoff stimulation of fission in nuclear materials. Conducted experiments to validate the feasibility of the approach. - Investigated alternative methods to detect fissions in nuclear materials from operationally relevant distances. - Started development of methods to rapidly determine nuclear weapon yields post-event, by investigating alternative prompt nuclear weapons effects on the environment. - Developed 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 nuclear forensics (TNF) results. - Continued to mature alternative neutron detection materials and systems as an alternative to the use of helium-3. - Investigated potential of a compact superconducting source in active interrogation systems. - Investigated the concept of a pulsed millimeter wave system which detects radioactive sources in both passive detection and active interrogation scenarios. - Improved a probabilistic code to enhance its modeling capabilities for specific problems. - Began efforts to improve accelerator design for improved capabilities with reduced weight and size.			
FY 2012 Plans: - Continue to mature passive interrogation systems for determining the location of nuclear material. - Complete design of man-portable field instrument capable of passively locating and identifying nuclear materials. - Continue to mature passive interrogation systems for determining the location of nuclear material. - Complete design of man-portable field instrument capable of passively locating and identifying nuclear materials. - Continue to develop and demonstrate neutron detection technology as an alternative to helium-3 neutron detectors.			

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency		DATE: February 2012
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Begin development of a rugged, mobile stand-off radiation detection system to provide detection and identification of nuclear materials in a field environment. - Research and develop new detector materials intended to improve the capability to detect, locate, and identify threat materials. Improve the manufacturing readiness level by maturing technologies, designs, and production processes. - Transition compact, high performing replacement electronics for detectors to commercial production. - Develop an advanced algorithm to increase speed and reliability of isotope identification in fielded hand-held and portable detectors. - Begin to incorporate radiation transport into existing operational modeling tools. - Begin development of compact superconducting cyclotrons as a source in active interrogation systems. - Continue to develop and field (prototype) upgraded technical capabilities for prompt and debris sample collection, sample analysis, and integration of design modeling and forensic data to support development of technical conclusions. - Complete execution, transition and fielding of the National Technical Nuclear Forensics (NTNF) Joint Concept Technology Demonstration (JCTD) capabilities and begin Limited Operational Use / Employment and Follow-on Sustainment activities. - Complete 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 field testing. - Expand the functionality of the Mobile Field Kit – Radiological (MFK-R) to add radiological situational awareness to the current suite of chemical sensors in the kit. - Investigate alternative methods to detect fissions in nuclear materials from standoff ranges, including the use of high-power lasers to generate beams of mono-energetic x-rays. - Investigate the use of muon and proton beams for standoff stimulation of fission in nuclear materials. Conduct experiments to validate the feasibility of the approach. - Progressively advance the laboratory physics demonstrations of target stimulation, signature detection, and validated modeling capability. - Develop a system to produce, capture, steer, cool and re-accelerate negative muons in a reduced footprint and with fewer components than are being used in comparable muon generating systems. - Develop the ability and Concept of Operations (CONOPS) to detect radiation induced air fluorescence from special nuclear material (SNM) by passive and active means. - Investigate concept of a pulsed millimeter wave system which detects radioactive sources in both passive and active interrogation scenarios.			

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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RF: *Detection Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Improve the Monte Carlo N-Particle (MCNP) code to enhance its modeling capability for specific problems. - 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. - Continue efforts to improve accelerator designs for higher acceleration gradients and reduced weight and size. ***FY 2013 Plans:*** - Continue development of a compact superconducting source in active interrogation systems. - Continue to identify all-source nuclear threat signatures, characteristics, and corresponding detection modalities; identify 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. - Investigate alternative methods to detect fissions in nuclear materials from standoff ranges. - Investigate the use of proton beams for standoff stimulation of fission in nuclear materials. Conduct experiments to validate the feasibility of the approach. - Progressively advance the laboratory physics demonstrations of target stimulation, signature detection, and validated modeling capability. - Investigate concept of a radio wave-type system to detect radioactive sources in multiple scenarios. - Improve a probabilistic code to enhance its modeling capability for specific problems. - Continue efforts to improve accelerator designs for improved capabilities with reduced weight and size. - Continue to incorporate radiation transport into existing operational modeling tools. - Test and evaluate developmental large-area detection systems. - Research and develop new detector materials intended to improve the capability to detect, locate, and identify threat materials. Improve the manufacturing readiness level by maturing technologies, designs, and production processes. - Continue to develop and demonstrate neutron detection technology as an alternative to helium-3 neutron detectors. - 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 in technical nuclear forensics (TNF) conclusions. 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. - Begin 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.			
Accomplishments/Planned Programs Subtotals	43.697	49.677	44.998

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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RF: *Detection Technology*

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
• 28/0603160BR: *Proliferation Prevention and Defeat*	77.472	77.784	76.298		76.298	77.863	78.528	80.321	81.651	Continuing	Continuing

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

Successful completion of the individual digital dosimeter project.

Increased standoff detection distance using a mobile active interrogation system to stimulate characteristic neutron and gamma ray signals from nuclear material.

Successful acceptance and operational development of transitional detection technologies.

Successful demonstrations of a forensics capability to support attribution involving both Radiological Dispersal and Improvised Nuclear Devices.

Delivery of technical equipment prototypes to reduce their current gaps in technology, to locate, characterize and provide advanced diagnostics to defeat Weapons of Mass Destruction devices in support of a classified Chairman Joint Chiefs of Staff plan.

Improved forensics evaluation tool capabilities.

Support development of National Technical Nuclear Forensics (NTNF) capabilities through development of technologies/prototypes addressing gaps and shortfalls in Department of Defense (DoD) NTNF capabilities, and through participation in the interagency process. Note: Specific metrics associated with NTNF are classified.

Use an active interrogation system to interrogate and differentiate Special Nuclear Materials and an inert material at extended ranges.

Delivery of a series of documents that discuss the technical aspects of radiation detection applied to realistic concepts of operations (CONOPS) for detecting radiological and nuclear threats, along with their supporting documents.

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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	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*	18.432	17.771	14.645	-	14.645	14.750	13.595	13.521	14.004	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 the technologies into the weapons and delivery systems most relevant to the COCOMs' WMD Defeat CONOPS for their Area of Responsibility (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 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 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: RG: Advanced Energetics & Counter WMD Weapons	18.432	17.771	14.645

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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	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:*** - Continued development and small-scale testing of new energetic materials for counter-WMD weapons payloads. - Continued maturing of advanced non-energetic WMD Defeat payload components. - Conducted scaled penetrator tests versus High Strength Concrete (HSC) and steel-encased concrete targets to further characterize breakthrough penetrator technologies. - Continued investigation of CWMD payloads capable of neutralizing large amounts of WMD agent. - Designed fuze well redundant data recorder for field and flight testing of both legacy and developmental hard target defeat weapons. - Initiated advanced testing of WMD Defeat sub-munitions (Kinetic Fireball). - Made Kinetic Fireball design improvements to address target equipment damage effectiveness and related small- and full-scale testing. - Designed low-cost layer and void sensing target detection device for hard target defeat fuzes. - Continued investigating thermite energetic materials to identify multi-effort research areas, trade studies, tests, and demonstrations that will inform how to best use thermite for WMD agent defeat. - Designed miniature shock survivable fuze based on current manufacturing technologies. - Continued development of a WMD process computer model useful for testing non-kinetic-based CWMD capabilities and applied it to specific CWMD targets. - Performed flight test of operational Battle Damage Information (BDI) Link Advanced Demonstrator (BLADE) system demonstrating capability to transmit BDI data into an Air Operations Center (AOC). - Performed flight testing of prototype Joint Direct Attack Munition (JDAM) Micro Air Vehicle (MAV) system demonstrating post-impact video coverage of target site and integration with BLADE hardware. - Explored integration of kinetic and non-kinetic capabilities into single CWMD payload. - Performed laboratory and field testing of hardware demonstrating capability to record and transmit weapon data during a harsh shock environment. - Conducted small-scale chemical and biological simulant defeat testing using new materials. - Demonstrated data reception portion of infrastructure for long haul communication of BDI data from battlefield back to command centers. - Refined, validated, and transitioned an algorithm for improving the capability to conduct test and evaluation of non-kinetic C-WMD payloads. - Conducted flight tests to support multi-hit weapon tactics and penetration model development.			

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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RG: *Advanced Energetics & Counter WMD Weapons*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Conducted kinetic and functional simulant neutralization experiments. - Conducted additional detonations in a scaled complex tunnel facility in support of weapon and model development efforts. - Initiated concept studies for BLU-119/B conversion using a safer, lower lifecycle cost payload fill. - Conducted thermal evaluation of the Joint Multi-Effects Warhead System (JMEWS) warhead and evaluated its potential for use against WMD. - Began development and testing of model improvements to Second-order Hydrodynamic Automatic Mesh Refinement Code (SHAMRC) (those identified in the 2010 evaluation). - Completed fabrication and installation of cluster molecule production equipment. - Began production of candidate cluster molecule energetic materials. - Began characterization and evaluation of cluster molecule energetic material candidates. - Developed highly metalized explosive formulation optimized using SHAMRC model guidance for maximized blast performance. - Continued to evaluate metalized explosive formulations optimized for maximum energy content. - Conducted model code comparison evaluation exercise to identify model code capabilities and needs. - Evaluated Advanced Energetics best candidate concepts for enhanced internal blast packet charges, metal-augmented charges, and structural reactive cases. - Completed development of explosive additive fuels optimized for defeat of chemical and biological agent threats. - Began development of explosive formulations using additive fuels for defeat of chemical and biological agent threats.			
FY 2012 Plans: - Select the most promising and enhanced survivable energetic material fill and inert simulant for CWMD weapon development. - Continue maturing advanced non-energetic WMD Defeat payload components. - Conduct subscale experiments to develop and verify prediction capability for countermeasure effects on projectile penetration. - Continue advanced testing of WMD Defeat sub-munitions. - Develop and test fuze well redundant data recorder for field and flight testing of both legacy and developmental hard target defeat weapons. - Begin testing and demonstrations of CWMD weapons payloads for use against bulk chemical agent. - Develop a low-cost layer and void sensing target detection device for hard target defeat fuze and transition hardware to a fuze development. - Continue to explore new energetic CWMD payloads by performing sub-scale characterizations of the next generation survivable penetrator energetic material fill. - Develop miniature shock survivable fuze and integrate low cost layer and void sensing target detection device hardware. - Continue development of process modeling capability for non-kinetic-based CWMD and apply it to specific CWMD targets. - Conduct flight testing of operational BLADE system, demonstrating capability to transmit BDI data into long haul communication infrastructure.			

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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RG: *Advanced Energetics & Counter WMD Weapons*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Continue to explore combining integration of kinetic and non-kinetic payloads into a single weapon for counter WMD. - Demonstrate entire infrastructure for long haul communication of BDI data from battlefield back to command centers leveraging BDI flight tests. - Begin testing and demonstrations of non-energetic CWMD payloads. - Conduct full-scale test against target with penetration countermeasures. - Begin integration of WMD Defeat sub-munitions into a weapon warhead. - Determine and catalog the accuracy and precision of bio-aerosol sampling equipment utilized in counter-WMD testing. - Conduct the investigations necessary to develop a capability that can determine how much chemical or biological agent is released in an explosive plume while achieving acceptable accuracy and precision. - Complete testing with insensitive munitions and other High Energy fills to determine how well they can neutralize large quantities of WMD agent. - Begin reduced scale target testing of CWMD payloads and capabilities. - Initiate testing for BLU-119/B conversion to safer, lower Life Cycle Cost payload fill.			
FY 2013 Plans: - Continue small-scale testing in support of BLU-121/B bomb development focusing on development of low lifecycle cost payload fills. - Initiate warhead integration of enhanced survivable explosive material fill and inert simulant. - Continue advanced testing of non-energetic WMD Defeat sub-munitions. - Continue testing and demonstrations of CWMD payloads. - Continue to explore integration of kinetic and non-kinetic capabilities into single payload for counter-WMD testing. - Continue testing and demonstrations of payloads capable of neutralizing large amounts of WMD agent. - Determine and catalog the accuracy and precision of bio-aerosol sampling equipment used in counter-WMD testing. - Continue development of a capability to conduct full-scale agent defeat testing with acceptable accuracy and precision. - Conduct large-scale target testing of functional and kinetic defeat technologies. - Conduct flight tests of Hard Target Void Sensing Fuze. - Conduct Next Generation AFX-757 Explosive Survivable Formulation that demonstrates enhanced survivability against hard and deeply buried targets. - Conduct flight testing of Robust Fuzewell Instrumentation System (RFIS) prototype to fully demonstrate capability of RFIS to support high shock munitions testing. - Develop robust forensic tools for an automated analysis of susceptibility of electronics to electromagnetic fields. - Demonstrate the capabilities of the JDAM tailkit BDI systems to provide near-real-time munition effectiveness estimates to the warfighter. - Demonstrate BDI system prototype.			

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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RG: *Advanced Energetics & Counter WMD Weapons*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Initiate potential WMD target access denial or denial-of-use technologies. - Evaluate small new inventory weapons effectiveness against WMD threats.			
Accomplishments/Planned Programs Subtotals	18.432	17.771	14.645

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
• 28/0603160BR: *Proliferation Prevention and Defeat*	18.273	15.186	20.682		20.682	21.540	21.780	22.487	23.212	Continuing	Continuing

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

Mature 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 2/3.

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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	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*	18.525	17.503	18.810	-	18.810	18.965	20.142	21.428	21.490	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Nuclear Survivability project provides enabling technologies for Department of Defense (DoD) nuclear forces and their associated control and support systems and facilities in wartime to avoid, repel, or withstand attack or other hostile action, to the extent that essential functions can continue or be resumed after the onset of hostile action. Emphasis is on ionizing radiation effects. The Nuclear Survivability project provides Radiation Hardened (RadHard) Microelectronics and Nuclear Weapons Effects (NWE) experimentation research. Funding in this project also supports the expanding role of the Nuclear Test Personnel Review (NTPR) program into Science & Technology development for human survivability.

The NWE simulators are available to validate nuclear survivability requirements for DoD missile and space systems, conduct research in radiation effects, and validate computational models. The Nuclear Survivability Experimental Capabilities program is working with the National Nuclear Security Administration and the United Kingdom Atomic Weapons Establishment to jointly develop new, enabling technologies for improved NWE experimentation capabilities for x-rays, gamma rays and neutrons.

The Nuclear Technology Analysis Support provides support for the Joint Atomic Information Exchange Group (JAIEG) and the international Weapon Effects Steering Committee (WESC) that was called the NWE Users' Group. The WESC establishes standards for U.S. and U.K nuclear weapons effects simulation codes and models as defined and prioritized by the nuclear community, and serves as a forum for sharing information on nuclear technologies, gaps and plans.

The increase from FY 2012 to FY 2013 is predominately due to increased investment in nuclear weapons effects efforts as part of a redirection of the nuclear detection portfolio toward a more holistic nuclear THREAT detection portfolio that integrates both passive and active radiation detection into a comprehensive Intelligence, Surveillance, and Reconnaissance (ISR) solution.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
Title: RI: Nuclear Survivability	18.525	17.503	18.810
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: - Demonstrated a new circuit upset mechanism involving power transients. - Demonstrated Radiation-Hardened Designs for Data Conversion and timing stability. - Demonstrated radiation hardening by use of charge cancellation technique. - Conducted risk mitigation experiments for a high-temporal fidelity gamma experimentation capability.			

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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RI: *Nuclear Survivability*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Demonstrated advanced laser-driven x-ray sources on National Ignition Facility (NIF) for potential NWE experimentation capabilities. - Demonstrated warm x-ray sources on Saturn to support certification of survivable DoD systems. - Conducted a demonstration of lower energy x-ray test capability for the certification of solar arrays and optic systems for survivable satellites and missile defense interceptors. ***FY 2012 Plans:*** - Develop 45nm RadHard-By-Design mitigation techniques. - Investigate 32nm technology Total Ionizing Dose mitigation methods. - Demonstrate compatibility of 90nm RadHard by design library cells and macro with 90nm RadHard by process enhancements. - Initiate fabrication of a high temporal fidelity prompt gamma simulator for satellite electronics certification. - Conduct laser-driven x-ray source demonstrations to support space telescope subsystem survivability. - Investigate potential neutron sources for survivability certification on the Z-machine at Sandia National Laboratories. - Integrate fast-running urban radiation transport algorithms into operational code. ***FY 2013 Plans:*** - Demonstrate initial 45nm RadHard prototype circuits to develop RadHard by design methods. - Continue development of Technology Computer-Aided Design modeling for 45nm circuit devices. - Characterization and mitigation of radiation effects in graphene devices. - Implementation of human radiation induced performance decrement model into operational code. - Perform a full-scale space interceptor telescope survivability test on NIF in collaboration with the Missile Defense Agency (MDA). - Initiate an investigation of advanced concepts to generate >10X the existing warm x-ray test capability to support strategic system life extension programs in collaboration with the National Nuclear Security Administration (NNSA).			
Accomplishments/Planned Programs Subtotals	18.525	17.503	18.810

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
• 28/0603160BR: *Proliferation Prevention and Defeat*	15.702	6.985	6.129		6.129	6.654	6.571	6.712	7.104	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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RI: *Nuclear Survivability*

E. Performance Metrics

Reduce facility overhead costs by disposition of excess government-owned simulator hardware at the West Coast Facility (WCF).

Development of cold and warm x-ray capabilities on the Saturn machine at Sandia National Laboratory that meet or exceed the equivalent capabilities at the WCF.

Weapon Effects Steering Committee: Coordinate and integrate nuclear weapon effects needs, capabilities and programs across the United States and United Kingdom defense communities and provide accreditation authority for all nuclear-related modeling and simulation.

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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	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*	15.891	25.343	25.752	-	25.752	23.904	25.202	25.539	25.964	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.

The increase from FY 2012 to FY 2013 is predominately due to increased investment in system vulnerability and assessment efforts as part of a redirection of the nuclear detection portfolio toward a more holistic nuclear THREAT detection portfolio that integrates both passive and active radiation detection into a comprehensive Intelligence, Surveillance, and Reconnaissance (ISR) solution.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
Title: RL: Nuclear & Radiological Effects	15.891	25.343	25.752
Description: Project RL develops nuclear and radiological assessment modeling tools to support military operational planning, weapon effects predictions, and strategic system design decisions. ***FY 2011 Accomplishments:*** - Began Electro Magnetic Pulse (EMP) E1 physics-based code for better modeling/predictions of EMP effects. - Continued Effects Manual-1 (EM-1) development (3 chapters published); continued publication of Joint Radiation Effects documentation. - Continued to validate code for system response to High Altitude Nuclear Effects (HANE); validate and integrate Modeling and Simulation (M&S) capability to understand HANE; validate and integrate M&S capability. - Demonstrated prototype sensor visualization capability. - Completed an Electromagnetic Pulse (EMP) Survivability Test on a Maritime Ship (USS Makin Island). - Completed an EMP Survivability Test on a B2 Bomber and an E4 NAOC in accordance with military test standards. - Conducted Survivability Verification Tests on military satellite communication facilities. - Conducted an EMP Power Grid experiment at Idaho National Laboratory, to test survivability of power infrastructures against EMP from high-altitude nuclear bursts.			

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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RL: *Nuclear & Radiological Effects*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Performed a High Altitude EMP (HEMP) assessment on the Emergency Ultra-High Frequency (UHF) network, to test survivability against EMP from high-altitude nuclear bursts. ***FY 2012 Plans:*** - Standup of the Nuclear Weapons Effects Network (NWEN) plans are designed to do the following: -- Model and code development, performing analyses at all computational levels of fidelity and run times. -- Emphasize re-initiation of quality NWE science via balanced modeling and simulation and experimentation. -- Focus initially on first-principles model development and Uncertainty Quantification. - Complete non-ideal Source Region Electromagnetic Pulse (SREMP) Study. - Complete new version of United States Strategic Command's (USSTRATCOM) official strategic targeting code used to determine the probability of damage from nuclear weapon. - Update trapped radiation belt model. - Continue EM-1 development (3 chapters); continue publication of Joint Radiation Effects documentation, continue to upgrade database of foreign nuclear weapon outputs for DoD and the Services. - Update Nuclear Weapons Effects Database (NWEDS) used by the Army for survivability and targeting calculations. ***FY 2013 Plans:*** - Prototype first principles urban effects model for nuclear detonations. - Deliver improved HANE model for better modeling/predictions of nuclear effects from space detonations. - Complete three dimensional models of nuclear fallout for better modeling/predictions of fallout from ground or low-altitude detonations. - Begin component level EMP response model for better modeling/predictions of effects on electronic systems. - Continue EM-1 development (4 chapters); continue publication of Joint Radiation Effects documentation, continue to upgrade database of foreign nuclear weapon outputs for DoD and the Services. - Deliver hazard source terms to the Chemical – Biological Defense Program's Joint Effects Model Block II, enhancing our ability to predict hazards associated with weapons of mass destruction. - Complete and publish MIL-STD-423 review to provide improved EMP protection for command and control facilities. - Conduct Maritime EMP Standard Ship Test to provide improved techniques for testing Navy vessels against EMP threats.			
Accomplishments/Planned Programs Subtotals	15.891	25.343	25.752

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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	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
• 28/0603160BR: *Proliferation, Prevention, and Defeat*	2.661	0.000	0.000		0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• 117/0605000BR: *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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	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*	18.255	13.761	18.969	-	18.969	19.066	19.988	20.593	20.729	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Weapons of Mass Destruction (WMD) Battle Management project provides applied research to support full and sub-scale testing required to investigate countering WMD weapon effects, and sensor performance, weapon effects modeling algorithm development, and the set-up of the Defense Threat Reduction Agency (DTRA) Experimentation Lab (DEL).

This project provides combatant commanders the prediction capability and the attack options to engage Hard & Deeply Buried Targets (HDBTs) as the proliferation and hardness of this class of targets increases. The project conducts weapon effects phenomenology (WEP) tests, analyzes data, conducts high performance computer simulations, and creates/modifies software to more accurately model cratering effects, fragmentation (both primary & secondary), internal air blast, equipment/container damage, structural response, and penetration. These efforts will lead to advanced modeling capability in the countering WMD tools, Integrated Munitions Effects Assessment (IMEA) weaponeering and Vulnerability Assessment and Protection Option (VAPO) force/structure protection. The Advanced Energetics & Counter WMD Weapons Program develops new novel energetic materials and weapon design technology for rapid, directed and enhanced energy release, providing new capability to defeat difficult WMD/HDB targets. The Advanced Energetics Program also develops new high energy systems well above chemical energy levels to defeat WMD targets beyond the reach of traditional high explosive blast/frag warhead technology.

The DTRA Experimentation Lab Capability is an Agency-wide capability that assures the timely acquisition, synchronization, correlation and delivery of Chemical, Biological, Radiological, Nuclear and Explosive (CBRNE) consequence management and mitigation data necessary in combating WMD. The DTRA Experimentation Lab will be the “key enabler” allowing the Agency to transform successfully into an interoperable DoD Science and Technology environment. Through the use of the DTRA Experimentation Lab, DTRA will be able to shape and improve military situational awareness independent of time or location, effectively shorten decision cycles in a CBRNE event, and extend DTRA’s knowledge base externally through collaborative technologies.

The increase from FY 2012 to FY 2013 is predominately due to the reallocation of funds from infrastructure development in Project RR - Test Infrastructure to weapons effects and planning tools in Project RM – Battle Management to properly align mission responsibilities.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
Title: RM: WMD Battle Management	18.255	13.761	18.969
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 Ultra High Performance Concrete (UHPC) penetration tests and material analysis. Continued modeling and finalized evaluation of current models.			

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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RM: *WMD Battle Management*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Delivered 15 additional validated equipment fragility models to support DoD need for accurate weapons effects modeling and simulation for counter-WMD planning tools. - Updated the WMD Agent Release database to support DoD need for accurate weapons effects modeling and simulation for counter-WMD planning tools. - Conducted blast door model testing and model modifications. - Completed Phase 1 progressive collapse testing and model development for concrete frame structures. Two column removal tests were conducted in a full-scale 4-story concrete test structure. - Completed five internal detonation tests for validation of Internal Detonation (quasi-static and dynamic pressure) models with bare explosives in conventional construction. - Improved Second-order Hydrodynamic Automatic Mesh Refinement Code (SHAMRC) to model flow of densely packed particles as well as very small sized particles. - Demonstrated new production process for aluminum nanoparticles with improved stability and safety. - Quantified Explosively Generated Plasma effects used for enhanced target damage. - Designed high performance reactive cases for explosive payloads, made from pressed powders, to enhance weapon performance. - Prepared conceptual enhanced blast design for high performance missile payload. - Continued to provide leading technological integration capabilities to the combating WMD mission through utilization of the DTRA Experimentation Lab (DEL). - Continued to support demonstrations and experimentation events for the Countering Weapons of Mass Destruction (C-WMD) Community of Interest (COI) to include participation in Noble Resolve, Coalition Warrior Interoperability Demonstration, Urban Resolve, and efforts to prevent loose nukes experimentation campaigns. - Continued facilitation of the internal Continuity of Operations Table Top Experiment through the DEL.			
FY 2012 Plans: - Integrate first principle modeling codes into Graphical User Interface (GUI)-based hazard prediction models. - Facilitate Joint Concept Development & Experimentation (JCDE) for the C-WMD COI. - Investigate and explore developmental technologies, such as Virtual Worlds. - Analyze, explore, and identify gaps and barriers associated with CWMD warfighter challenges. - Complete facilitation of the internal Continuity of Operations Table Top Experiment through the DEL. - Plan, design, execute, and analyze warfighting experimentation in support of DTRA, and in coordination with the Services, Combatant Commands, Defense agencies, and the interagency as appropriate. - Perform annual cycle of requirements collection, challenge proposals, resource allocation, and tech support through High Performance Computing.			

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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RM: *WMD Battle Management*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Support two DTRA DoD high performance computing challenge projects, “Improve parallel scalability of important Computational Fluid Dynamics (CFD)” and “Computational Structural Mechanics (CSM) codes to reduce time to solution.” - Provide interface between important CFD & CSM codes to analysis software to facilitate Validation, Sensitivity Studies, and Uncertainty Quantification. - Develop capability to model equipment fragility for any generic equipment. - Conduct testing and modeling improvements to the WMD Agent Release Model to support DoD need for accurate weapons effects modeling and simulation for counter-WMD planning tools. - Complete blast door model verification and validation. - Conduct Phase 2 progressive collapse testing and begin modeling effort for steel frame structures. - Finalize Internal Detonation testing and (quasi-static and dynamic pressure) model. - Begin test program for blast propagation through failing bunker walls from blast and fragmentation. - Incorporate SHAMRC workshop recommendations into improved SHAMRC; compare the simulated results with test results. - Evaluate technology transfer to cruise missile payload using DTRA-developed reactive case technology. - Integrate enhanced blast explosives and reactive cases into designs for weapon payloads. - Study performance of payloads based on enhanced blast explosives and reactive cases for agent defeat. - Begin efforts to develop novel energy storage capabilities based on antimatter storage, super halogen chemistry, warm dense matter at high pressure, hydrogen isotope reactions, and high nitrogen explosives.			
FY 2013 Plans: - Facilitate Joint Concept Development & Experimentation (JCDE) for the CWMD Community of Interest. - Integrate virtual environments into DTRA wargaming activities. - Analyze, explore, and identify gaps, and barriers associated with CWMD Warfighter Challenges through the use of wargaming and tabletop exercises. - Perform annual cycle of requirements collection, challenge proposals, resource allocation, and technical support through High Performance Computing. - Submit two DTRA Challenge Proposals for improved quality of service in time limit, allowed job size, and job throughput on DoD high performance computers. - Improve computational methods for prediction of progressive collapse. - Complete blast through failing walls test series and provide new model for blast through failing walls from inventory weapons. - Start delivery of validated high fidelity models for air blast in complex tunnels. - Start delivery of validated models for blast and fragmentation through failing blast doors. - Improve computational methods for prediction of progressive collapse. - Provide modeling support for the transfer of novel energetic concepts to selected weapon systems. - Complete formulation testing, perform in-depth fragmentation test and analysis with reactive liners in sub-scale warheads.			

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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RM: *WMD Battle Management*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Continue testing of agent defeat mechanisms using hybrid enhanced blast explosives and reactive cases. - Begin work to develop warhead energy release tailored to target environment and to develop directed blast energy release to enhance target damage. - Continue development of warm dense matter at high pressure; demonstrate novel use of this material state for x-ray generation. - Complete synthesis and lab tests of one new explosive compound.			
Accomplishments/Planned Programs Subtotals	18.255	13.761	18.969

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
• 28/0603160BR: *Proliferation, Prevention and Defeat*	29.143	22.303	22.503		22.503	22.527	22.937	23.700	24.328	Continuing	Continuing

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

Confidence in engineering models based on software validation and testing.

Number of targets successfully planned.

Time required completing assessments.

The DTRA Experimentation Lab (DEL) is occupied by planning or execution efforts 75% of the year.

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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	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*	13.509	21.941	13.782	-	13.782	14.135	14.414	15.005	15.610	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 proliferate 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.

The decrease from FY 2012 to FY 2013 is predominately due to the reallocation of funds from infrastructure development in Project RR - Test Infrastructure to weapons effects and Planning tools in Project RM - Battle Management, and reduced investment in test infrastructure environment restoration support and the WMD National Test Bed (TB).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
Title: RR: Test Infrastructure	13.509	21.941	13.782
Description: Project RR provides a unique national test bed capability for simulated WMD facility characterization, weapon-target interaction, and WMD facility defeat testing to respond to operational needs by developing and maintaining test beds used by the DoD, the Services, the Combatant Commanders and other federal agencies to evaluate the implications of WMD, conventional, and other special weapon use against U.S. military or civilian systems and targets.			
FY 2011 Accomplishments: - Augmented funding of test articles, design and drawings, construction and tunnel operation for Massive Ordinance Penetrator (MOP) Quick Reaction Capability (QRC) testing at White Sands Missile Range (WSMR). - Completed construction of add-on structures to Component Test Structure-3 to develop weapons effects and mitigation test data models for fire and blast in cooperation with the Singapore government. Test executed first quarter of FY 2011. Follow-on test construction scheduled to begin second quarter FY 2012, estimated test execution third quarter FY 2012. - Conducted upgrade and integration of instrumented mobile wireless “Mesh” infrastructure capabilities and improvements in support of the Department of Homeland Security/Domestic Nuclear Detection Office (DHS/DNDO) tests conducted at DTRA and			

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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RR: *Test Infrastructure*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
DHS/DNDO defined CONUS-wide sites for the DHS/DNDO Secure the Cities (STC), Lower Manhattan Security Initiative (LMSI), and other functional tests. - Conducted Interagency Biological Restoration Demonstration (IBRD) testing in conjunction with DoD & DHS to reduce the time and resources necessary to recover and restore wide urban areas, military installations, and critical infrastructure following a biological incident. - Conducted testing on Chemical, Biological, Radiological, Nuclear and Explosive (CBRNE) sensors, WMD countermeasures, remote geological sensing, and battle management systems designed for surveillance and tracking targets used for WMD activities. - Conducted WMD Aerial Collection System (WACS) testing that is designed to meet U.S. Forces Korea's requirement of an "all-in-one" Chemical, Biological, Radiological, and Nuclear (CBRN) sensor system for post-strike assessment (Battle Damage Assessment) of suspected WMD facilities and mobile time-sensitive targets. - Conducted nuclear detection and forensics testing to prevent weapons grade material/dirty bombs from entering the U.S., U.S. territories, and Allied Nations. - Conducted Weapons of Mass Destruction sensor testing at the Technical Evaluation Assessment and Monitor Site (TEAMS) to detect nuclear grade material from entering the U.S., U.S. territories, and Allied Nations through rail, ship, and air ports. - Continued environmental remediation and compliance activities at the Nevada National Security Site (NNSS), Dugway Proving Ground (DPG), WSMR, and Kirtland Air Force Base (KAFB) in accordance with Environmental Protection Agency (EPA), Safety, and Environmental guidelines. - Developed Cost Analysis Tool for Test Sites database to develop Rough Order of Magnitude estimates for different types of tests as well as different test bed. - Conducted tunnel work detection testing at NNSS for the Customs and Border Patrol to be able to detect tunnel work or tunnels along northern and southern borders of CONUS. - Continued infrastructure and instrumentation upgrades to ensure test beds meet customers' advanced technology testing needs. - Partnered with the National Laboratories and conducted Source Physics Experiment I and II at NNSS to support Comprehensive Test Ban Treaty Initiatives, new START Warhead Verification. - Completed installation of test instrumentation support systems at U12u tunnel NNSS. - Obtained a Highly Enriched Uranium Sphere for use at the TEAMS, KAFB for support radiation detection testing. - Finalized effort to transfer DECADE module II nuclear simulator from West Coast Facility, CA to University of Alabama-Huntsville, AL. - Placed the Hard Target Defeat "Capitol Peak Tunnel Complex," WSMR in mothball status. - Completed the deactivation of Detachment Two Test Support Division, DPG. - Documented, prioritized, and supported test infrastructure 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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RR: *Test Infrastructure*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Conducted and evaluated field-level facility biological remediation studies, decontamination sampling & analysis protocol (Bio Response Operational Test and Evaluation), jointly managed by EPA and DHS, DTRA serving as the interagency test coordinating/execution lead. ***FY 2012 Plans:*** - Develop and implement prototype Voice Over Internet Protocol (VOIP) system that can transfer both classified and unclassified data, voice communications, video, etc., to support test program execution starting first quarter FY 2012. - Modify existing test infrastructure or develop test infrastructure to support revitalized Weapons Effects Phenomenology Program supporting DTRA test programs. - Make improvements to existing test infrastructure and test articles, or construct new test articles to support DTRA Detection Technology Program starting in first quarter FY 2012. - Conduct testing in support of Treaty Verification Technologies Program and Source Physics Experiments to support Comprehensive Test Ban Treaty Initiatives, New START Warhead Verification, and detection and verification of Biological and Chemical Weapons. - Continue support of Weapons of Mass Destruction sensor testing at the Technical Evaluation Assessment and Monitor Site (TEAMS) to detect and prevent nuclear grade material from entering the U.S., U.S. Territories, and Allied Nations through rail, ship, and air ports. - Continue Interagency Biological Restoration Demonstration (IBRD) testing in conjunction with DoD and DHS to reduce the time and resources necessary to recover and restore wide urban areas, military installations, and critical infrastructure, following a biological incident. - Continue testing Chemical, Biological, Radiological, Nuclear, and Explosive sensors, WMD countermeasures, remote geological sensing, and battle management systems designed for surveillance and tracking targets used for WMD activities. - Continue WMD Aerial Collection System testing that is designed to meet U.S. Forces Korea's requirement of an "all-in-one" Chemical, Biological, Radiological, and Nuclear sensor system for post-strike assessment (Battle Damage Assessment) of suspected WMD facilities and mobile time-sensitive targets. - Continue nuclear detection and forensics testing to prevent weapons grade material/dirty bombs from entering the U.S., U.S. Territories, and Allied Nations. - Continue Weapons of Mass Destruction sensor testing at the Technical Evaluation Assessment and Monitor Site to detect and prevent nuclear grade material from entering the U.S., U.S. Territories, and Allied Nations through rail, ship, and air ports. - Continue environmental remediation and compliance activities at the Nevada National Security Site (NNSS), Dugway Proving Grounds (DPG), White Sands Missile Range (WSMR), and Kirtland Air Force Base (KAFB) in accordance with EPA, Safety, and Environmental guidelines throughout FY 2012. - Continue development of a Cost Analysis Tool for Test Sites database to develop Rough Order of Magnitude estimates for different types of tests as well as different test beds during FY 2012.			

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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RR: *Test Infrastructure*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Continue tunnel work detection testing at Nevada National Security Site for the Customs and Border Patrol to be able to detect tunnel work or tunnels along northern and southern borders of CONUS. - Continue infrastructure and instrumentation upgrades to ensure test beds meet customers' advanced technology testing needs. - Document, prioritize, and support test infrastructure requirements. ***FY 2013 Plans:*** - Complete Integrated Technology Demonstration (ITD) at NNSS to defeat credible and threat-based scenarios; continue with transition into several related projects/planned events through FY 2017. - Begin Directorate ITD testing at WSMR prioritizing requirements to support reduced architectural and engineering design efforts and construction of future CWMD test beds. - Support development and demonstration of Transatlantic Collaboration Biological Resiliency Demo (TACBRD), a DoD capability to shape interagency approach to counter a wide area biological event impacting U.S. and partner nations' key civilian/military infrastructure. - Begin research of Biological Reaerolization in conjunction with DoD/DHS/EPA to help develop precise measurement technologies for residual biological pathogens reentering air after settling. - Conduct intergovernmental test program between DTRA and Defence Research and Development Canada (DRDC), Biological Agent Defeat testing. - Begin testing in support of "Speed of Sound" nuclear forensic program estimated to continue through FY 2015 - Maintain current version of VOIP system that can transfer classified and unclassified data, voice communications, video, etc. to support test program execution. - Maintain existing test infrastructure in current configuration to support revitalized Weapons Effects Phenomenology Program supporting DTRA test programs; make improvements through funding provided by external program managers. - Improve existing test infrastructure and test articles or construct new test articles to support DTRA Detection Technology Program through funding provided by external program managers. - Conduct testing in support of Treaty Verification Technologies Program and Source Physics Experiments to support Comprehensive Test Ban Treaty Initiatives, New START Warhead Verification, and detection and verification of Biological and Chemical Weapons. - Continue support of Weapons of Mass Destruction sensor testing at the TEAMS to detect and prevent nuclear grade material from entering the U.S., U.S. territories, and Allied Nations through rail, ship, and air ports with funding provided by external program managers. - Continue IBRD testing in conjunction with DoD and DHS to reduce the time and resources necessary to recover and restore wide urban areas, military installations, and critical infrastructure, following a biological incident. - Dependent on external program manager funding, continue testing CBRNE sensors, WMD countermeasures, remote geological sensing, and battle management systems designed for surveillance and tracking targets used for WMD 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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RR: *Test Infrastructure*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Complete WACS testing that is designed to meet U.S. Forces Korea's requirement of an "all-in-one" CBRN sensor system for post-strike assessment (Battle Damage Assessment) of suspected WMD facilities and mobile time-sensitive targets. - Continue nuclear detection and forensics testing to prevent weapons grade material/dirty bombs from entering the U.S., U.S. territories, and Allied Nations through funding provided by external program managers. - Continue environmental remediation and compliance activities at the NNSS, DPG, WSMR, and KAFB in accordance with EPA, Safety, and Environmental guidelines. Defer major demolition and restoration efforts of major test articles while ensuring they are safely closed and sealed at minimal acceptable standards. - Maintain the current version of a Cost Analysis Tool for Test Sites database to develop Rough Order of Magnitude estimates for different types of tests as well as different test beds. - Continue tunnel work detection testing at NNSS for the Customs and Border Patrol to be able to detect tunnel work or tunnels along northern and southern borders of CONUS. - Maintain current inventory of infrastructure and instrumentation, extending life-cycle of these items as long as possible to ensure test beds meet customers' advanced technology testing needs. - Document, prioritize, and support test infrastructure requirements; pass on test support and execution costs to external program managers. - Close the Large Blast Thermal Simulator eliminating ability to execute test requirements on these nuclear effects. - Evaluate and determine courses of action for current usefulness of remaining existing nuclear simulators within management control of Test Support Division.			
Accomplishments/Planned Programs Subtotals	13.509	21.941	13.782

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
• 28/0603160BR: *Proliferation, Prevention, and Defeat*	1.790	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 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.

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency		DATE: February 2012
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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 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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	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*	0.845	-	-	-	-	-	-	-	-	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 either physical or functional defeat. Extending this activity and applying these processes to Weapons of Mass Destruction (WMD) target characterization and threat analysis presents the next technical challenge. The Target Assessment Technologies project now 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. Follow-on funding for this project can be found in the Proliferation Prevention and Defeat; 0603160BR, budget exhibit.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
Title: RT - Target Assessment Technologies	0.845	-	-
Description: Project RT 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. Follow-on funding for this project can be found in the Proliferation Prevention and Defeat; 0603160BR, budget exhibit. ***FY 2011 Accomplishments:*** - Initiated development of additional universal rock models (URM) for specific types of rock for use in characterizing the geological properties associated with underground targets. - Developed new Standard Operating Procedures (SOPs) for “Quicklooks” and characterizations of foreign WMD developments for use in support of crisis operations.			
Accomplishments/Planned Programs Subtotals	0.845	-	-

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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RT: *Target Assessment Technologies*

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
• 28/0603160BR: *Proliferation, Prevention, and Defeat*	35.047	33.493	31.298		31.298	31.883	32.743	33.413	34.139	Continuing	Continuing

D. Acquisition Strategy

N/A

E. Performance Metrics

Complete development of three additional Universal Rock Models (URMs) for use in Underground Targeting and Analysis System (UTAS) target characterizations.

Improve Counter-WMD Analysis Cell capabilities and processes for the analysis and assessment of foreign development of 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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RU: *Fundamental Research for Combating WMD*	

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
RU: *Fundamental Research for Combating WMD*	7.961	8.631	2.000	-	2.000	0.516	0.567	0.549	0.549	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Fundamental Research for Combating WMD project (1) conducts early applied science research with an emphasis on maturing emerging science into Counter WMD technologies; (2) Supports a partnership of six universities with connections to over 20 additional universities, and (3) conducts strategic studies in support of DoD Combating WMD issues. The advancement of technology and science into applied technology development effort focus upon increasing the stability and utility of mid-to-long term, moderate risk but high payoff science, and emerging technologies for transition to other Defense Threat Reduction Agency (DTRA) applied technology programs. This effort serves as the bridge between the bench scientist and the applied technologist. The university partnership provides innovative research, scientific experts, post-doctoral fellowships, and scholarships to US students directly supporting cutting edge science, international cooperation programs and the next generation workforce. The strategic studies address challenges in reducing the threat from WMD based on an assessment of the future national security environment. They also develop and maintain an evolving analytical vision of necessary and sufficient capabilities to protect the U.S. and allied forces and citizens from nuclear, biological, and chemical attack and identify gaps in these capabilities and initiate programs to fill them.

The decrease from FY 2012 to FY 2013 is predominately due to the elimination of University Strategic Partnerships activities, reduced efforts in Combating Weapons of Mass Destruction – Terrorism (CWMD-T), and the transfer of advanced systems concepts funding from project RU – Fundamental research for combating WMD to project RA – Systems Engineering and Innovation to perform strategic research and dialogues.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
Title: RU: Fundamental Research for Combating WMD	7.961	8.631	2.000
Description: Project RU provides (1) strategic studies to support DoD, (2) Decision support tools and analysis to support combating WMD research and development investments, and (3) early applied research for technology development.			
FY 2011 Accomplishments: - Identified 38 of 112 basic science projects as candidate Science and Technology research and development projects to appropriate long-term sponsors for concept/design validation, prototype fabrication, testing, and fielding. - Conducted eleven active research projects—Two major accomplishments. -- Developed and transitioned initial nuclear materials detection capabilities, one for land use and one for underwater unmanned vehicles—potential pre-detonation nuclear weapon detection systems. -- Developed new carbon-based transistor—potential as basis for next generation radiation-hardened electronics and for space sensors. - Continued to exercise the test bed to assess promising technologies to quantify and mitigate large area nuclear effects on systems, networks and 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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RU: *Fundamental Research for Combating WMD*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Continued "bridging" projects for early applied development of combating WMD technologies. - Continued to provide technical expertise and advice to generate the new basic research topics in support of the semi-annual solicitation. - Continued the mentoring, sponsorship, and education of the "Next Generation" of mission-critical scientific, technical and engineering expertise. -- Sponsored 17 U.S. student theses this past year—historically about 60% transition to US government or private sector positions supporting US government. -- Provided 6 Post-doctoral fellows to DTRA—one transitioned to government and one transitioned to a DoD contractor. ***FY 2012 Plans:*** - Initiate expanded Fundamental Research Broad Agency Announcement (BAA) toward continuing Academic Partnerships as a core DTRA capability, as current University Strategic Partnership (USP) contract comes to its monetary close after 10 years. - Identify and transition all suitable investigatory Science and Technology research and development projects to appropriate long-term sponsors for concept/design validation, prototype fabrication, testing, and fielding. - Identify and conduct strategic studies addressing challenges in reducing the threat from WMD. - Continue "bridging" projects for early applied development of combating WMD technologies. - Continue to provide technical expertise and advice to generate the new basic research topics in support of the semi-annual solicitation. - Continue the mentoring, sponsorship, and education of the "Next Generation" of mission-critical scientific, technical and engineering expertise. ***FY 2013 Plans:*** - Initiate close out of the current University Strategic Partnership (USP) contract after 10 years of activities. - Close out the remainder of the eleven active research projects.			
Accomplishments/Planned Programs Subtotals	7.961	8.631	2.000

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
• 1/0601000BR: *DTRA Basic Research Initiative*	46.107	47.737	45.071		45.071	45.493	45.925	46.757	47.602	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 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RU: *Fundamental Research for Combating WMD*

E. Performance Metrics

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

Publication of an annual basic research technical and external programmatic review report.

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

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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.			

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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.			

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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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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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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.

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Transition of next-generation detection systems.

Exhibit R-2A, RDT&E Project Justification: PB 2013 Defense Threat Reduction Agency			DATE: February 2012
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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.

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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
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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
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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.

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605000BR: *WMD Defeat Capabilities*

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	7.826	5.888	5.749	-	5.749	5.995	6.077	8.359	8.541	Continuing	Continuing
RL: *Nuclear & Radiological Effects*	7.826	5.888	5.749	-	5.749	5.995	6.077	8.359	8.541	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Weapons of Mass Destruction (WMD) Toolset is the real-time globally accessible net-centric framework which migrates the Defense Threat Reduction Agency (DTRA) chemical, biological, radiological, nuclear, and high explosive (CBRNE) modeling and simulation codes to provide an integrated suite of Combating WMD decision support capabilities. The framework is the only operational CBRNE framework in the world which provides capabilities through web applications, net-centric web services, and stand-alone mobile deployments which are validated and accredited for operational use by International, National, State, and local authorities.

B. Program Change Summary ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
Previous President's Budget	7.307	5.888	5.749	-	5.749
Current President's Budget	7.826	5.888	5.749	-	5.749
Total Adjustments	0.519	-	-	-	-
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-0.603	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	1.330	-			
• SBIR/STTR Transfer	-0.163	-			
• FFRDC Reduction	-0.008	-	-	-	-
• Economic Assumption Reduction	-0.037	-	-	-	-

Change Summary Explanation

The increase from the previous President's Budget submission in FY 2011 the net effect of the Congressional Rescission, the Federally Funded Research and Development Center (FFRDC) reduction, the Economic Assumption reduction, and a transfer of funding from WMD Defeat Technologies; 0602718BR for increased investment in the Joint Collaborative Analysis Module of the Integrated Weapons of Mass Destruction Toolset (IWMDT).

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605000BR: *WMD Defeat Capabilities*	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*	7.826	5.888	5.749	-	5.749	5.995	6.077	8.359	8.541	Continuing	Continuing
Quantity of RDT&E Articles											

A. Mission Description and Budget Item Justification

Net-Centric Architecture includes three functional areas: 1) Integrated Weapons of Mass Destruction Toolset (IWMDT), 2) IWMDT Codes, and 3) Software Assurance and Certification and Accreditation. The IWMDT functional area develops the architecture, defines and implements the standards to consolidate validated Defense Threat Reduction Agency (DTRA) tools, and through this architecture, enables rapid access for planning, emergency response, and assessment capabilities. These capabilities are used by a wide range of planners, managers, and operational and technical personnel facing the full spectrum of chemical, biological, radiological, nuclear, and high-yield explosives threats. The IWMDT Codes functional area develops analysis and simulation codes, and then integrates the codes into the IWMDT architecture. These efforts are unique to this effort across the Department of Defense (DoD) and directly supports analysis capabilities in the Office of the Secretary of Defense (OSD) Studies and Analysis Group, and Cost Assessment and Program Evaluation (OSD CAPE), US Pacific Command and United States Forces Korea offices, Republic of Korea Ministry of Defense, Ministry of Defense Taiwan, as well as providing unique simulation capabilities to US Joint Forces Command and the Air Force Distributed Mission Operation Center. This sub-project extends research and development to system development and demonstration.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
Title: RL: Nuclear & Radiological Effects	7.826	5.888	5.749
FY 2011 Accomplishments: - Deployed IWMDT 3.2 as a common nuclear assessment capability to U.S. Strategic Command (USSTRATCOM), United Kingdom Ministry Of Defence (UK MOD) and Supreme Headquarters Allied Powers Europe (SHAPE), providing the first true collaborative Chemical, Biological, Radiological, Nuclear, and High-yield Explosives (CBRNE) environment between the US and UK in accordance with 1959 International Memorandum Of Understanding. - Enhanced implementation of Net Centric Enterprise Services messaging and collaboration for use across exercise and operational deployments. - Enhanced the two primary capabilities in IWMDT 3.3 by integrating Hazard Prediction Assessment Capability (HPAC) 5.0 SP1 Maintenance build within the Consequence Assessment, and Integrated Munitions Effects Assessment (IMEA) 2010 within the Target Support area. - Integrated IWMDT-SIM and Joint Collaborative Analysis Model (JCAM) into IWMDT 3.3 expanding the IWMDT capabilities areas through external systems integration using the web-services capabilities. Each new capability extends the DTRA legacy CBRNE tools to new training and operational user communities. - Upgraded COE/NUCS STRATCOM nuclear data sets across the IWMDT framework providing more accurate and scaleable assessments for the nuclear community.			

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 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605000BR: *WMD Defeat Capabilities*	PROJECT RL: *Nuclear & Radiological Effects*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
- Migrated NUCS nuclear capabilities into IWMDT 3.2 and 3.3 enabling FY 2012 deployment of the net-centric based nuclear planning and assessment tools. ***FY 2012 Plans:*** - Develop and provide an initial cyberspace capability through internal agency integration efforts. - Integrate advanced capabilities within the Net-Centric Architecture with the Global Strike Mission. - Complete and release IWMDT framework version 3.4. ***FY 2013 Plans:*** - Leverage the 4th Qtr FY11 and FY12 successes across USSTRATCOM, the UK and SHAPE, enabling IWMDT to become the primary CBRNE assessment capability within the DTRA Reachback and enabling it to become the single integrated assessment CBRNE capability across DTRA, STRATCOM, UK and U.S. Army Nuclear and Combating WMD Agency (USANCA).			
Accomplishments/Planned Programs Subtotals	7.826	5.888	5.749

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
• 28/0603160BR: *Proliferation, Prevention, and Defeat*	2.661	0.000	0.000		0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

D. Acquisition Strategy

The program for IWMDT is executed through a competed Cost Plus Fixed-Fee contract. This contract is a 3-year effort for software development, test, and integration. Follow-on contracts will be competed for award to continue any out-year activities.

E. Performance Metrics

Demonstrate and provide over 80% of the customer-required CBRNE modeling and simulation capabilities over networks, e.g. Department of Defense Global Information Grid.

Transform 100% of the validated mission-required legacy Defense Threat Reduction Agency CBRNE codes to a net-centric implementation in a process-controlled Verification, Validation, and Accreditation standards-based method.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Defense Threat Reduction Agency		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605000BR: *WMD Defeat Capabilities*	PROJECT RL: *Nuclear & Radiological Effects*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System Development - IWMDT	C/CPAF	SAIC:San Diego, CA	17.109	3.100	Jan 2012	-		-		-	14.510	34.719	37.949
System Development - NuCS	C/CPFF	Applied Research Associates:Raliegh, NC	4.930	-		-		-		-	0.000	4.930	6.300
System Development - COE	C/CPFF	Titan:Kingstowne, VA	5.535	-		-		-		-	0.000	5.535	7.100
System Development - Component Contracts	C/Various	Various:Various	5.073	-		-		-		-	0.000	5.073	6.800
		Subtotal	32.647	3.100		-		-		-	14.510	50.257	58.149

Remarks

The "Various" reported reflects multiple contracts, mainly CPFF.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Configuration Management	C/Various	SAIC, ARA, Titan:Various	0.146	0.060	Jan 2012	0.095	Mar 2013	-		0.095	1.353	1.654	2.074
Software Integration	C/Various	SAIC, ARA, Titan:Various	3.100	0.200	Jan 2012	2.510	Mar 2013	-		2.510	1.100	6.910	6.910
Technical Data	C/Various	SAIC, ARA, Titan:Various	0.050	0.573	Jan 2012	0.050	Mar 2013	-		0.050	0.938	1.611	2.300
Engineering Services	C/Various	SAIC, ARA, Titan:Various	1.464	0.503	Jan 2012	0.908	Mar 2013	-		0.908	0.786	3.661	3.727
Accreditation & Certification	C/Various	SAIC, ARA, Titan:Various	0.146	0.420	Jan 2012	0.509	Mar 2013	-		0.509	0.983	2.058	2.058
		Subtotal	4.906	1.756		4.072		-		4.072	5.160	15.894	17.069

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Defense Threat Reduction Agency		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605000BR: *WMD Defeat Capabilities*	PROJECT RL: *Nuclear & Radiological Effects*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	C/Various	SAIC, ARA, Titan:Various	1.555	0.350	Jan 2012	0.505	Mar 2013	-		0.505	1.300	3.710	5.228
Operational Test & Evaluation	C/Various	SAIC, ARA, Titan:Various	1.555	0.070	Jan 2012	0.398	Mar 2013	-		0.398	0.925	2.948	4.456
		Subtotal	3.110	0.420		0.903		-		0.903	2.225	6.658	9.684

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	C/Various	SAIC, ARA, Titan:Various	2.296	0.132	Jan 2012	0.234	Mar 2013	-		0.234	2.100	4.762	5.278
Travel	C/Various	SAIC, ARA, Titan:Various	1.070	0.240	Jan 2012	0.270	Mar 2013	-		0.270	1.300	2.880	3.530
Overhead	C/Various	SAIC, ARA, Titan:Various	2.293	0.240	Jan 2012	0.270	Mar 2013	-		0.270	1.600	4.403	4.403
		Subtotal	5.659	0.612		0.774		-		0.774	5.000	12.045	13.211

	Total Prior Years Cost	FY 2012 Cost	FY 2012 Award Date	FY 2013 Base Cost	FY 2013 Base Award Date	FY 2013 OCO Cost	FY 2013 OCO Award Date	FY 2013 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	46.322	5.888		5.749		-		5.749	26.895	84.854	98.113

Remarks

All "PY Costs" costs and activities for Integrated Weapons of Mass Destruction Toolset (IWMDT), Nuclear Capability Server (NuCS), and Consequence of Execution (COE) were assigned under Project BD of PE 0602716BR. IWMDT was funded in 2004 by a competitive CPAF contract for $12.425M over a 3-year period. At end of FY 2006, its follow-on contract was awarded with an initial $.300M increment. IWMDT program efforts have continued into FY 2011 with $28.962M now applied. Likewise, the NuCS program was funded under a competitive CPFF contract over a 3-year period with funding of $5.913M applied through FY 2008; a follow-on contract has now been awarded with initial funding to date of $2.356M to continue program efforts, this effort is not funded past FY11 under this line. COE was funded under a competitive CPFF contract with increments to date of $6.566M total. NUCS and COE will no longer be funded under this line. In CY 2012 IWMDT will be openly competed under the new DTRA ID/IQ for approx $24.000M for FY2014-16.

Exhibit R-4, RDT&E Schedule Profile: PB 2013 Defense Threat Reduction Agency		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605000BR: *WMD Defeat Capabilities*	PROJECT RL: *Nuclear & Radiological Effects*

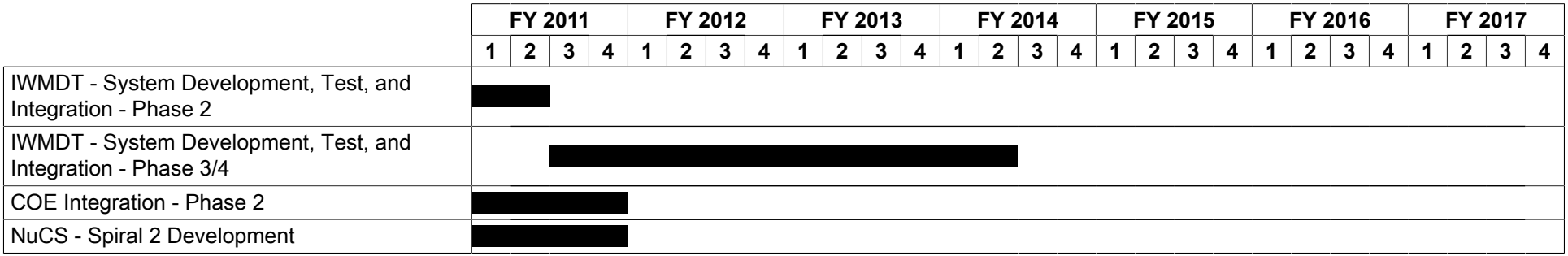

Exhibit R-4A, RDT&E Schedule Details: PB 2013 Defense Threat Reduction Agency		DATE: February 2012
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 5: *Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605000BR: *WMD Defeat Capabilities*	PROJECT RL: *Nuclear & Radiological Effects*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
IWMDT - System Development, Test, and Integration - Phase 2	1	2011	2	2011
IWMDT - System Development, Test, and Integration - Phase 3/4	3	2011	2	2014
COE Integration - Phase 2	1	2011	4	2011
NuCS - Spiral 2 Development	1	2011	4	2011

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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 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605502BR: *`Small Business Innovation Research*

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	7.888	-	-	-	-	-	-	-	-	Continuing	Continuing
RA: *Systems Engineering and Innovation*	7.888	-	-	-	-	-	-	-	-	Continuing	Continuing

Note

* Funding is not allocated until the year of execution. Program Element 0605502BR “Small Business Innovative Research (SBIR)” is used in reporting year-end actual expenses only.

A. Mission Description and Budget Item Justification

The SBIR program provides the means for stimulating technological innovation in the private sector, strengthens the role of small business in meeting Department of Defense (DoD) research and development needs; fosters and encourages participation of minority and disadvantaged businesses in technological innovation; and increases the commercial application of DoD supported research and development results. These efforts are responsive to Public Law 106-554.

B. Program Change Summary ($ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	7.888	-	-	-	-
Total Adjustments	7.888	-	-	-	-
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	7.888	-			

Change Summary Explanation

Funding for the FY 2011 SBIR Program has been consolidated in this program element for execution.

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 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605502BR: *`Small Business Innovation Research*	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*	7.888	-	-	-	-	-	-	-	-	Continuing	Continuing
Quantity of RDT&E Articles											

Note

* Funding is not allocated until the year of execution. Program Element 0605502BR “Small Business Innovative Research (SBIR)” is used in reporting year-end actual expenses only.

A. Mission Description and Budget Item Justification

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2011	FY 2012	FY 2013
Title: RA: Systems Engineering and Innovation	7.888	-	-
Description: This project provides the means for stimulating technological innovation in the private sector, strengthens the role of small business in meeting the Department of Defense (DoD) research and development needs; fosters and encourages participation of minority and disadvantaged businesses in technological innovation; and increases the commercial application of the DoD supported research and development results. These efforts are responsive to Public Law 106-554. ***FY 2011 Accomplishments:*** *** PLEASE ENTER TEXT ***			
Accomplishments/Planned Programs Subtotals	7.888	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

Number of Phase I awards supporting innovative technology development.

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 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605502BR: *`Small Business Innovation Research*	PROJECT RA: *Systems Engineering and Innovation*

Number of Phase II and III awards leading to technology transition.

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