Department of Defense
Fiscal Year (FY) 2014 President's Budget Submission

April 2013

Defense Threat Reduction Agency

Justification Book

Research, Development, Test & Evaluation, Defense-Wide

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Defense-Wide
FY 2014 President's Budget
Exhibit R-1 FY 2014 President's Budget
Total Obligational Authority
(Dollars in Thousands)

26 Feb 2013

Summary Recap of Budget Activities	FY 2012 (Base & OCO)	FY 2013 Base Request with CR Adj*	FY 2013 OCO Request with CR Adj*	Emergency Disaster Relief Act of 2013	FY 2013 Total Request with CR Adj*	FY 2014 Base
Basic Research	47,712	45,071			45,071	45,837
Applied Research	193,189	172,352			172,352	175,282
Advanced Technology Development	279,166	275,022			275,022	274,033
System Development And Demonstration	5,750	5,749			5,749	12,901
Management Support	6,964					
Total Research, Development, Test & Evaluation	532,781	498,194			498,194	508,053
Summary Recap of FYDP Programs						
Research and Development	532,781	498,194			498,194	508,053
Total Research, Development, Test & Evaluation	532,781	498,194			498,194	508,053

R-1C: FY 2014 President's Budget (Published Version), as of February 26, 2013 at 17:27:47

Defense-Wide
FY 2014 President's Budget
Exhibit R-1 FY 2014 President's Budget
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(Dollars in Thousands)

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Appropriation	FY 2012 (Base & OCO)	FY 2013 Base Request with CR Adj*	FY 2013 OCO Request with CR Adj*	Emergency Disaster Relief Act of 2013	FY 2013 Total Request with CR Adj*	FY 2014 Base
Defense Threat Reduction Agency	532,781	498,194			498,194	508,053
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26 Feb 2013

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

Line No	Program Element Number	Item	Act	FY 2012 (Base & OCO)	FY 2013 Base Request with CR Adj*	FY 2013 OCO Request with CR Adj*	Emergency Disaster Relief Act of 2013	FY 2013 Total Request with CR Adj*	FY 2014 Base	Sec
1	0601000BR	DTRA Basic Research Initiative	01	47,712	45,071			45,071	45,837	U
		Basic Research		47,712	45,071			45,071	45,837	
25	0602718BR	Weapons of Mass Destruction Defeat Technologies	02	193,189	172,352			172,352	175,282	U
		Applied Research		193,189	172,352			172,352	175,282	
31	0603160BR	Counterproliferation Initiatives - Proliferation Prevention and Defeat	03	279,166	275,022			275,022	274,033	U
		Advanced Technology Development		279,166	275,022			275,022	274,033	
124	0605000BR	Weapons of Mass Destruction Defeat Capabilities	05	5,750	5,749			5,749	12,901	U
		System Development And Demonstration		5,750	5,749			5,749	12,901	
153	0605502BR	Small Business Innovation Research	06	6,964						U
		Management Support		6,964						
Total Research, Development, Test & Eval, DW				532,781	498,194			498,194	508,053	

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Defense Threat Reduction Agency
FY 2014 President's Budget
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Appropriation: 0400D Research, Development, Test & Eval, DW

Line No	Program Element Number	Item	Act	FY 2012 (Base & OCO)	FY 2013 Base Request with CR Adj*	FY 2013 OCO Request with CR Adj*	Emergency Disaster Relief Act of 2013	FY 2013 Total Request with CR Adj*	FY 2014 Base	Sec
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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: System 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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Acronyms

ACES	Arms Control Enterprise System
AD	Agent Defeat
AFX	Air Force Explosive
AI	Active Interrogation
AOR	Area of Responsibility
ARIEL	Autonomous Reconnaissance Infrared Electro-optical Loitering
ASIC	Application Specific Integrated Circuit
ATAC	Advanced Targeting Assessment Capability
ATD	Advanced Technology Development
AUV	Autonomous Underwater Vehicle
AWE	Atomic Weapons Establishment
BAA	Broad Agency Announcement
BDA	Battle Damage Assessment
BDI	Battle Damage Information
BLADE	BDI Link Advanced Demonstrator
BLU	Bomb, Live Unit
C4I	Command, Control, Communications, Computers, and Intelligence
CANES	Consolidated Afloat Network and Enterprise Services
CAPE	Capability Assessment and Program Evaluation
CATTS	Cost Analysis Tool for Test Sites
C-B	Chemical-Biological
CBP	Customs and Border Protection
CBRNE	Chemical, Biological, Radiological, Nuclear, and High-yield Explosives
CFD	Computational Fluid Dynamics
CHAMP	Counter Electronics High Power Microwave Advanced Missile Project

CJCS	Chairman, Joint Chiefs of Staff
CNDSP DTRA	Computer Network Defense Service Provider
COCOM	Combatant Command
COE	Consequence of Execution
CoE-NI	Consequence of Execution – Nuclear Integration
COI	Community of Interest
CONOPS	Concept of Operations
CONUS	Continental United States
COOP	Continuity of Operations
COP	Common Operating Picture
CP	Counter-proliferation
CSM	Computational Structure Mechanics
CTBT	Comprehensive Nuclear Test Ban Treaty
CT/CP	Counterterrorism / Counterproliferation
CTTS	CBRNE Tactical Training System
C-WAC	Counter-WMD Analysis Center
CWMD	Combating Weapons of Mass Destruction
CWMD-T	Combating Weapons of Mass Destruction –Terrorism
DEL	DTRA Experimentation Lab
DHS	Department of Homeland Security
DIOCC/DIA	Defense Intelligence Operations Coordination Center/Defense Intelligence Agency
DITEC DTRA	Integration Technical Experimentation Center
DoD	Department of Defense
DO	DISCREET OCULUS
DOE	Department of Energy
DOJ	Department of Justice

DPG	Dugway Proving Ground
DRDC	Defence Research and Development Canada
DTRA	Defense Threat Reduction Agency
EDTC	Engineering and Development Test Center
EM-1	Capabilities of Nuclear Weapons: Effects Manual Number 1
EMP	Electromagnetic Pulse
EOD	Explosive Ordnance Disposal
EPA	Environmental Protection Agency
FEFLO	Finite Element Flow Solver
FFRDC	Federally Funded Research and Development Center
FinFets	Fin-Shaped Field Effect Transistors
FOC	Full Operational Capability
FYDP	Future Years Defense Program
GCC	Global Command and Control
GEF	Guidance for Employment of the Force
GKMC	Global Knowledge Management System
GSA	Global Situational Awareness
GSM	Global System for Mobile Communications
GUI	Graphical User Interface
HAMMER	Heated and Mobile Munitions Employing Rockets
HANE	High Altitude Nuclear Environments
HEBX	Hybridized Enhanced Blast Explosive
HEMP	High Altitude Electro Magnetic Pulse
HDBT	Hard and Deeply Buried Target
HPAC	Hazard Prediction and Assessment Capability
HPC	High Performance Computing

HTD	Hard Target Defeat
IBRD	Interagency Biological Restoration Demonstration
IED	Improvised Explosive Device
IMEA	Integrated Munitions Effects Assessment
IMS	International Monitoring System
IOC	Initial Operational Capability
IPODS	Integrated Precision Ordnance Delivery System
ISR	Intelligence, Surveillance, Reconnaissance
ISS	Integrated Sensor System
IR	Infrared
IT	Information Technology
ITD	Integrated Technology Demonstration
IWMDT	Integrated Weapons of Mass Destruction Toolset
JAIEG	Joint Atomic Information Exchange Group
JCAM	Joint Collaborative Analysis Model
JCDE	Joint Concept Development & Experimentation
JCIDS	Joint Capabilities Integration and Development System
JCTD	Joint Concept Technology Demonstration
JDAM	Joint Direct Attack Munition
JEM	Joint Effects Model
JSAF	Joint Semi-Automated Forces
KAFB	Kirtland Air Force Base
keV	kilo-electronvolt
LLE	Laboratory for Laser Energetics
LLNL	Lawrence Livermore National Laboratory
MACS	Modular Autonomous Countering WMD System

MCNP	Monte Carlo N-Particle
MDA	Missile Defense Agency
M&S	Modeling and Simulation
MET	Modernization of Enterprise Terminals
MFK-R	Mobile Field Kit – Radiological
MIL STD	Military Standard
MPAS	Mission Planning and Assessment System
NACT	Nuclear Arms Control Technology
NATO	North Atlantic Treaty Organization
NCPC	National Counterproliferation Center
NIF	National Ignition Facility
nm	nanometer
NM	Nuclear Matters
NNSA	National Nuclear Security Administration
NNSS	Nevada National Security Site
NSPD	National Security Presidential Directive
NST	New START Treaty
NTNF	National Technical Nuclear Forensics
NTPR	Nuclear Test Personnel Review
NuCS	Nuclear Capability Services
NWE	Nuclear Weapon Effects
NWEN	Nuclear Weapon Effects Network
NWEDS	Nuclear Weapons Effects Database System
NWRM	Nuclear Weapons Related Materiel
OCO	Overseas Contingency Operations
OCONUS	Outside the Continental United States

ODX	Operationally demonstrated/exercised
O&M	Operations and Maintenance
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)
PDCALC	Probability of Damage Calculator
PDV	Product Demonstration Vehicle
PITAS	Photonuclear Inspection and Threat Analysis System
PNAF	Prime Nuclear Airlift Forces
PTS	Provisional Technical Secretariat
QDR	Quadrennial Defense Review
R2TD	Rapid Reaction Tunnel Detection
R&D	Research and Development
RadHard	Radiation Hardened
RFIS	Robust Fuzewell Instrumentation System
RHBD	Radiation Hardened by Design
RHM	Radiation Hardened Microelectronics
RL-16	US radionuclide laboratory
R/N	Radiological/Nuclear
ROM	Rough Order of Magnitude
S&T	Science & Technology
SBIR	Small Business Innovative Research
SCSP USSOCOM	Combating Weapons of Mass Destruction – Terrorism Support Program
SHAMRC	Second-order Hydrodynamic Automatic Mesh Refinement Code
SHAPE	Supreme Headquarters Allied Powers, Europe

SGEMP	System-Generated Electromagnetic Pulse
SMDC	US Army Space Missile Development Command
SNM	Special Nuclear Material
SOF	Special Operations Forces
SOX	Standoff Operational Exercise
SPE	Source Physics Experiment
SPG	Short Pulse Gamma
SREMP	Source Region Electromagnetic Pulse
START	Strategic Arms Reduction Treaty
TACBRD	TransAtlantic Collaboration Biological Resiliency Demo
TB	Test Bed
TEAMS	Technical Evaluation Assessment and Monitor Site
TNF	Technical Nuclear Forensics
TOA	Total Obligation Authority
TPMM	Technology Program Management Model
TRAC	Threat Reduction Advisory Committee
TRL	Technology Readiness Level
TSG	Technical Support Group
TTL	Tag, Track, Locate
TVT	Treaty Verification Technology
TWAC	Targeting and Weaponeering Analysis Cell
TXL	Transportable Xenon Laboratory
UAS	Unmanned Aerial Systems
UCP	Unified Command Plan
UGF	Underground Facility
UGT	Underground Test

UHPC	Ultra-High Performance Concrete
UK	United Kingdom
USANCA	U.S. Army Nuclear and Combating WMD Agency
USEUCOM	U.S. European Command
USFK	U.S. Forces Korea
USG	United States Government
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 2014 Defense Threat Reduction Agency											DATE: April 2013	
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)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	46.107	47.712	45.071	45.837	-	45.837	46.662	47.502	48.357	49.228	Continuing	Continuing
RU: *Fundamental Research for Combating WMD*	46.107	47.712	45.071	45.837	-	45.837	46.662	47.502	48.357	49.228	Continuing	Continuing

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

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

A. Mission Description and Budget Item Justification

The Defense Threat Reduction Agency (DTRA) safeguards America and its allies from Weapons of Mass Destruction (chemical, biological, radiological, nuclear, and high-yield 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, counter proliferation 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 DTRA's Basic Research Initiative program element supports several National and Department initiatives directly related to countering WMD. The 2010 QDR directs capability enhancements, including: accelerate the development of standoff radiological/nuclear detection capabilities; and prevent proliferation and counter weapons of mass destruction with specific initiatives to: 1) Research countermeasures and defenses to non-traditional agents, 2) Enhance nuclear forensics, 3) Secure vulnerable materials, 4) Develop new verification technologies, and 5) Develop an in-depth understanding of the capabilities, values, intent, and decision making of potential adversaries, whether they are individuals, networks, or states. Basic research supporting all of these needs is included in this program element under projects RU-Fundamental Research for Combating WMD. Additionally, it supports the National Strategy for Countering Biological Threats priorities. This strategy spells out four focus areas: 1) Promote global health security efforts through building and improving international capacity to prevent, detect, and respond to infectious disease threats, whether caused by natural, accidental, or deliberate events, 2) Establish and reinforce norms against the misuse of the life sciences, 3) Expand of our capability to prevent, attribute, and apprehend those engaged in biological weapons proliferation or terrorism, with a focus on facilitating data sharing and knowledge discovery to improve integrated capabilities (capability expansion), and 4) Leveraging science, technology, and innovation through domestic and international partnerships and agreements to improve global capacity to respond to and recover from biological incidents (Leveraging Science). Again all four focus areas are supported in this program element under Project RU-Fundamental Research for Combating WMD. In the general sense, these efforts are relevant for biologically-based and inspired materials for DoD applications, including passive and/or remote sensing; and expand- our capability to apprehend those engaged in bio-

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Defense Threat Reduction Agency	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 1: *Basic Research*	R-1 ITEM NOMENCLATURE PE 0601000BR: *DTRA Basic Research Initiative*

weapons proliferation and terrorism by supporting basic research on bio-agent neutralization and bio-agent defeat employing combustion or deflagration. Details are provided in the R-2a exhibits.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	47.737	45.071	45.493	-	45.493
Current President's Budget	47.712	45.071	45.837	-	45.837
Total Adjustments	-0.025	0.000	0.344	-	0.344
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.025	0.000			
• Realignment	-	-	0.344	-	0.344

Change Summary Explanation

The decrease in FY 2012 from the previous President's Budget submission in FY 2012 is due to the internal SBIR transfer.

The increase in FY 2014 is due to increased investment in Program Element 0601000BR to maintain zero real growth in funding for Basic Research activities per the Defense Planning Guidance.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 1: *Basic Research*	R-1 ITEM NOMENCLATURE PE 0601000BR: *DTRA Basic Research Initiative*	PROJECT RU: *Fundamental Research for Combating WMD*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
RU: *Fundamental Research for Combating WMD*	46.107	47.712	45.071	45.837	-	45.837	46.662	47.502	48.357	49.228	Continuing	Continuing

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

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

A. Mission Description and Budget Item Justification

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) $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 Defense Threat Reduction Agency (DTRA) nonproliferation, counter proliferation 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.

Project RU (Fundamental Research for Combating WWD) supports several National and Department initiatives directly related to countering WMD. The 2010 QDR directs capability enhancements, including: accelerate the development of standoff radiological/nuclear detection capabilities; and prevent proliferation and counter weapons of mass destruction with specific initiatives to: 1) Research countermeasures and defenses to non-traditional agents, 2) Enhance nuclear forensics, 3) Secure vulnerable materials, 4) Develop new verification technologies, and 5) Develop an in-depth understanding of the capabilities, values, intent, and decision making of potential adversaries, whether they are individuals, networks, or states. Basic research supporting all of these needs is included in this program element under projects RU-Fundamental Research for Combating WMD. Additionally, this Project supports the National Strategy for Countering Biological Threat priority/focus area 1) Global Health Security, 2) Life Sciences, 3) Capability Expansion, and 4) Leveraging Science. The DTRA Basic Research program accomplishes research in the life sciences, which has cross-cutting applicability and thus is relevant to a variety of DoD mission spaces, within and outside of those related to countering biological threats. In the general sense, these efforts are relevant for biologically-based and inspired materials for DoD applications, including passive and/or remote sensing; and they expand our capability to apprehend those engaged in bio-weapons proliferation and terrorism by supporting basic research on bio-agent neutralization and bio-agent defeat employing combustion or deflagration. Finally, this project supports and administers the Cooperative Biological Engagement Program "Cooperative C-WMD research with global partners program", for which the core goals are to secure dangerous pathogens, promote open and active disease reporting and response, and advance transparent research to understand pathogens and develop potential countermeasures.

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-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 1: *Basic Research*	R-1 ITEM NOMENCLATURE PE 0601000BR: *DTRA Basic Research Initiative*	PROJECT RU: *Fundamental Research for Combating WMD*

The increase in FY 2014 is due to increased investment in Fundamental Research to maintain zero real growth in funding per the Defense Planning Guidance for activities related to the discovery and development of fundamental knowledge for the benefit of Counter WMD related defense missions.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: Project RU: Fundamental Research for Combating WMD	47.712	45.071	45.837

Description: 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.

FY 2012 Accomplishments:
- Managed over 200 active basic research awards on a three to five year cycle. The Agency's Basic Research portfolio continued the CWMD grand challenge for the DoD, and was capitalized at approximately 9% of the DTRA research and development investment.
- Conducted 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.
- Conducted an external panel review of the basic research program, 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:
- Manage over 160 active basic research awards on a three to five year cycle. The Agency's 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.

FY 2014 Plans:
- Manage over 200 active basic research awards on a three to five year cycle. The Agency's Basic Research portfolio is expected to continue the CWMD grand challenge for the DoD.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 1: *Basic Research*	R-1 ITEM NOMENCLATURE PE 0601000BR: *DTRA Basic Research Initiative*	PROJECT RU: *Fundamental Research for Combating WMD*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
- 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	47.712	45.071	45.837

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• 25/0602718BR: *WMD Defeat Technologies*	8.931	2.000	0.516		0.516	0.567	0.549	0.549	0.559	Continuing	Continuing

Remarks

D. Acquisition Strategy

Procurement methods include in-scope awards through competitive selection through the Defense Threat Reduction Agency Broad Agency Announcement and collaborative funding through other organizations.

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 2014 Defense Threat Reduction Agency											DATE: April 2013	
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)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	197.984	193.189	172.352	175.282	-	175.282	178.437	181.649	184.919	188.247	Continuing	Continuing
RA: *Information Science and Applications*	44.923	42.279	33.396	31.263	-	31.263	32.901	31.870	33.852	34.505	Continuing	Continuing
RE: *Counter-Terrorism Technologies*	15.946	2.409	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
RF: *Detection and Forensics Technologies*	43.697	45.570	44.998	40.454	-	40.454	40.857	41.638	42.560	43.447	Continuing	Continuing
RG: *Defeat Technologies*	18.432	15.881	14.645	15.059	-	15.059	12.753	13.971	13.206	13.459	Continuing	Continuing
RI: *Nuclear Survivability*	18.525	19.606	18.810	21.041	-	21.041	22.289	23.241	23.261	23.658	Continuing	Continuing
RL: *Nuclear & Radiological Effects*	15.891	25.783	25.752	35.741	-	35.741	37.284	37.888	38.297	38.824	Continuing	Continuing
RM: *WMD Counterforce Technologies*	18.255	16.089	18.969	16.617	-	16.617	16.919	17.032	17.137	17.458	Continuing	Continuing
RR: *Test Infrastructure*	13.509	16.641	13.782	14.591	-	14.591	14.867	15.460	16.057	16.337	Continuing	Continuing
RT: *Target Assessment Technologies*	0.845	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
RU: *Fundamental Research for Combating WMD*	7.961	8.931	2.000	0.516	-	0.516	0.567	0.549	0.549	0.559	Continuing	Continuing

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

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

Note

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

A. Mission Description and Budget Item Justification

The 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

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Defense Threat Reduction Agency	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*

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.

Activities funded by Program Element 0602718BR implement a wide set of National Security Presidential Directive (NSPD) 17 and emerging Presidential Policy Directive (PPD) guidance for prevention of proliferation of WMD and WMD terrorism. Projects support strengthening nonproliferation, through the development of the Arms Control Enterprise System (ACES) and development of Arms Control inspection training and operational capabilities. Through development of new sensor systems, sensor networks, counterforce and fundamental CWMD research, these programs contribute to securing and interdicting WMD, WMD delivery systems and related materials. Finally, programs in this area fund development and operation of the STRATCOM-DTRA SCC-WMD Technical Reachback center, which supports all GCC, US and Allied Forces, and civil authorities with 24/7 analysis support, enabling force and civilian population protection against WMD attack.

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

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

Project RE (Counter-Terrorism Technologies) 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.

Project RF (Detection and Forensics Technologies) 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, materials, or infrastructure in support of Department of Defense (DoD) requirements for combating terrorism, counterproliferation and nonproliferation, homeland defense, and international initiatives and agreements.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Defense Threat Reduction Agency	DATE: April 2013
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Project RG (Defeat Technologies) develops advanced technologies and weapon concepts and validates their applicability as counter WMD weapon systems.

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

Project RL (Nuclear & Radiological Effects) develops nuclear and radiological assessment modeling tools to support military operational planning, weapon effects predictions, and strategic system design decisions.

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

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

Project RU (Fundamental Research for Combating WMD) 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.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	196.083	172.352	170.483	-	170.483
Current President's Budget	193.189	172.352	175.282	-	175.282
Total Adjustments	-2.894	0.000	4.799	-	4.799
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.894	-			
• Realignment	-	-	1.199	-	1.199
• Programmatic - Fiscal Guidance	-	-	3.600	-	3.600

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Defense Threat Reduction Agency	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*

Change Summary Explanation

The decrease from the previous President's Budget submission in FY 2012 is due to the internal SBIR transfer. The increase in FY 2014 from the previous President's Budget submission is predominately due to increased investment in the areas of RG-Defeat Technologies, RI-Nuclear Survivability, RL-Nuclear and Radiological Effects, and RR-Test Infrastructure.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RA: *Information Science and Applications*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
RA: *Information Science and Applications*	44.923	42.279	33.396	31.263	-	31.263	32.901	31.870	33.852	34.505	Continuing	Continuing

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

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

Note

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

A. Mission Description and Budget Item Justification

The Information Science and Applications project provides (1) systems engineering and analysis support across all other projects, (2) 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 hour/7 days per week information and analyses on potential impacts of a WMD event to Warfighters and First Responders in consult with DTRA's Combating WMD Research and Development subject matter experts. This project also provides support to international Counter-WMD science and technology cooperation by developing modifications, improvements, or new technologies and information tools suitable for foreign release and cooperative efforts.

Program RA supports the National Strategy for Countering Biological Threat priority/focus area 3) Capability Expansion and 4) Leveraging Science. DTRA's integration of the Chemical-Biological Simulation Suite into the Chemical, Biological, Radiological, Nuclear, and High-yield Explosives (CBRNE) Tactical Training System (CTTS) toolset to represent the threat delivery, hazard environment, and real-time sensors will be utilized for training and passive defense within the battlespace. Particularly in support of Leveraging Science, DTRA continues comprehensive information exchanges with Chief of Science and Technology (S&T) Offices across various agencies responsible for countering biological threats in response to SecDef S&T Priorities Memorandum. This program also targets development of a common picture of biological threats, clarification of lead on specific counter bio mission areas, and collaboration on common technology development.

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. The decrease from FY 2013 to FY 2014 is predominately due to decreased investment in research and development analysis support to fund increased investment in RU-Fundamental Research for Combatting WMD and RG-Defeat Technologies.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RA: *Information Science and Applications*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: RA: Information Science and Applications	42.279	33.396	31.263

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

FY 2012 Accomplishments:

Developed next generation CWMD analysis Reachback tool capabilities.

- Solicited innovative research projects focused on Chemical-Biological (CB) detection, Improvised Explosive Device (IED), and Special Nuclear Materials (SNM) detection including: Vessel Boarding Inspection System, Bioaerosol Collector, Handheld CBE Sensors, Detection of Water Based Threats (Radiation), Multi-Mode Laser-Based Sensor for Explosive Standoff Detection, Gadolinium Aerogel, and Medical-Radiation Exposure Device.
- Provided Open Innovation and Technology Watch/Scouting in support of CBRNE S&T development for DTRA and Other Government Agencies to include DTRA's Operations, Exercise, and Readiness, OSD(AT&L), Rapid Reaction Technology Office, and Counter Terrorism Technology Support Office.
- Conducted requirements and gap analyses to enable research and development efforts to meet WMD capability gaps.
- Supported program and project managers by translating Agency goals and Concept of Operations into actionable products.
- Completed initial concept demonstrations for Standoff Detection in the Continental United States (CONUS) and Outside the Continental United States (OCONUS) environments to combat WMD proliferation.
- Investigated and explored modeling and simulation developmental technologies, such as Virtual Worlds.
- Analyzed, explored, and identified gaps, and barriers associated with CWMD Warfighter Challenges
- Supported STRATCOM requirements for an integrated strategic stockpile force structure planning tool.
- Supported Office of the Secretary of Defense Capability Assessment and Program Evaluation (OSD CAPE) with standoff nuclear detection analysis and modeling.
- Performed analysis studies to predict new WMD threats.
- Stimulated, identified, and executed high-impact projects to address long term resolution of WMD issues.
- Provided long-range analytical CWMD support to the warfighter.
- Designed and implemented Mission Domain IT architecture. This included migration and integration of current R&D IT capabilities leveraged by DTRA operational and combat support customers into the operational IT infrastructure.
- Contracted support to design, implement and manage the DTRA Integration, Test and Experimentation Center.
- Designed Mission Domain IT architecture and completed first phase of implementation. Implementation includes migration and integration of current R&D IT capabilities leveraged by DTRA operational and combat support customers into the operational IT infrastructure.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RA: *Information Science and Applications*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
-Provided 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). - Began modifications and capability improvements to vulnerability assessment software and integrated WMD toolsets, including initial modularization of software architectures to allow for easy removal and optional replacement of engineering models. - Began development of capability to model secondary and tertiary effects supporting optimal course of action and tactical decisions for WMD operations, focusing on a nuclear scenario. - Provided systems engineering support to numerous DTRA programs, projects, and activities, to include nuclear detection activities, innovative new technologies, modeling and simulation activities, and strategic planning efforts. - Designed and implemented a research and development portfolio management software tool for use across all programs, projects, and activities. - Managed the Threat Reduction Advisory Committee (TRAC). ***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 Combating 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. - 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.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RA: *Information Science and Applications*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
- 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 life-cycle development as well as interfacing passive code exploitation reporting to the DTRA Computer Network Defense Service Provider (CNDSP).			
FY 2014 Plans: - Continue to solicit innovative research projects for developing new technologies and increased end-user capabilities to support "Data to Decisions" S&T development. - Provide Open Innovation and Technology Watch/Scouting in support of "Data to Decisions" S&T development for DTRA and Other Government Agencies. - Continue to conduct strategic analyses and assessments on emerging WMD threats using various strategic research methodologies. - Manage the Threat Reduction Advisory Committee (TRAC). - Modernize and improve DTRA's portfolio management software tool. - Continue requirements and gap analyses to enable research and development efforts to meet combating CWMD capability gaps. - Support program and project managers by translating Agency goals and Concept of Operations into actionable products. - Test and continue development on next generation capabilities for "real-time" reachback supporting radiological search and visualization - Continue modifications and capability improvements to vulnerability assessment software and integrated WMD toolsets to contribute to new CWMD cooperative technology efforts.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RA: *Information Science and Applications*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
- Continue activities to implement Full Operational Capability for Mission Domain IT architecture. - Make improvements to the DTRA Integration, Test and Experimentation Center. - Continue to provide systems engineering contractor support to numerous DTRA Research and Development programs, projects, and activities, to include nuclear detection activities, innovative new technologies, modeling and simulation activities, and Research and Development strategic planning efforts. - Continue to upgrade and manage the research and development portfolio management software tool for use across all DTRA Research and Development programs, projects, and activities. - Develop and modernize a Global Knowledge Management Capability (GKMC) software tool for OSD level and other users.			
Accomplishments/Planned Programs Subtotals	42.279	33.396	31.263

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• 31/0603160BR: *Proliferation Prevention and Defeat*	13.354	7.455	2.431		2.431	1.934	2.415	2.351	2.381	Continuing	Continuing

Remarks

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.
Number of exercise and operations supported.
Number of Defense Acquisition Workforce Improvement Act certified systems engineers.
New capabilities delivered and transitioned to operational capabilities.
Mission Enclave moves from development to Initial Operational Capability (IOC).
Mission Enclave moves from IOC to Full Operational Capability (FOC) by FY 2014.
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 2014 Defense Threat Reduction Agency			DATE: April 2013
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)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
RE: *Counter-Terrorism Technologies*	15.946	2.409	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

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

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

A. Mission Description and Budget Item Justification

The 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 (CWMD-T). 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 2012	FY 2013	FY 2014
Title: RE: Counter-Terrorism Technologies	2.409	0.000	0.000
Description: Project RE (Counter-Terrorism Technologies) provides research and development support to Joint U.S. Military Forces, specifically U.S. Special Operations Command (USSOCOM), in the areas of Explosive Ordnance Disposal Device Defeat; counter-WMD technologies for warfighters; the USSOCOM Combating Weapons of Mass Destruction – Terrorism Support Program (SCSP); and oversight of counterproliferation (CP) research and development resources sent directly to USSOCOM for warfighter-unique CP technologies.			
FY 2012 Accomplishments: - SCSP reached Full Operational Capability (FOC) while increasing support to COCOM planning efforts related to CWMD-T from previous levels.			
Accomplishments/Planned Programs Subtotals	2.409	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• 31/0603160BR: *Proliferation Prevention and Defeat*	112.905	110.657	111.658		111.658	111.820	114.130	116.796	118.230	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RE: *Counter-Terrorism Technologies*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost

Remarks

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

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

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RF: *Detection and Forensics Technologies*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
RF: *Detection and Forensics Technologies*	43.697	45.570	44.998	40.454	-	40.454	40.857	41.638	42.560	43.447	Continuing	Continuing

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

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

Note

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

A. Mission Description and Budget Item Justification

This project develops technologies, systems and procedures to detect, identify, track, locate, monitor and interdict strategic and improvised nuclear and radiological weapons, components, materials or infrastructure in support of Department of Defense requirements for combating terrorism, counterproliferation and nonproliferation, homeland defense, and international initiatives and agreements. This project researches, develops, demonstrates, and transitions advanced technologies to improve operational capabilities to detect and identify nuclear and radiological weapons. It supports the attribution process through development, demonstration, and transition of improved post-detonation National Technical Nuclear Forensics (NTNF) operational capabilities in the areas of materials collection, debris diagnostics and materials analysis, and prompt diagnostics and device reconstruction. Efforts under this project also support international peacekeeping and nonproliferation objectives, on-site and aerial inspections and monitoring, on-site sampling and sample transport, and on-site and off-site analysis to meet forensic, verification, monitoring and confidence-building requirements.

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

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.

The decrease from FY 2013 to FY 2014 is predominately due to decreased investment in Detection Technology to fund increased investment in nuclear weapons effects research for survivability in Project RL - Nuclear & Radiological Effects.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: RF: Detection and Forensics Technologies	45.570	44.998	40.454

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RF: *Detection and Forensics Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Description: Project RF (Detection and Forensics Technologies) 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, materials, or infrastructure in support of Department of Defense (DoD) requirements for combating terrorism, counterproliferation and nonproliferation, homeland defense, and international initiatives and agreements. ***FY 2012 Accomplishments:*** - Continued maturing passive interrogation systems for determining the location of nuclear material. - Completed design of man-portable field instrument capable of passively locating and identifying nuclear materials. - Continued to develop and demonstrate neutron detection technology as an alternative to helium-3 neutron detectors. - Began development of a rugged, mobile stand-off radiation detection system to provide detection and identification of nuclear materials in a field environment. - Continued development of new detector materials intended to improve the capability to detect, locate, and identify threat materials. Improved the manufacturing readiness level by maturing technologies, designs, and production processes. - Transitioned compact, high performing replacement electronics for detectors to commercial production. - Continued development and improvements to an advanced algorithm to increase speed and reliability of isotope identification in fielded hand-held and portable detectors. - Began incorporating radiation transport into existing operational modeling tools. - Began development of compact superconducting cyclotrons as a source in active interrogation systems. - Continued to develop, accelerated development where appropriate, and demonstrated 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. - Under the NTNF Joint Capability Technology Demonstration (JCTD), tested, trained, and operationally demonstrated/exercised (ODX) advanced post-detonation ground/airborne particulate collection and yield determination technologies. - Continued development of a fieldable standoff active interrogation system for standoff detection and warning of hidden and shielded nuclear material. - Continued to perform field demonstrations of new detector technologies for handheld detectors, distributed sensors, and vehicle mountable detector systems, to improve the ability of fielded forces to detect, locate, and identify nuclear materials in the battle space. - Continued to improve performance of new detector materials, imaging and spectroscopy systems, and signals analysis methods through rigorous field testing. - Expanded 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.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RF: *Detection and Forensics Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
- Investigated 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. - Continued to advance the laboratory physics demonstrations of target stimulation, signature detection, and validated modeling capability. - Continued to investigate the possibility and Concept of Operations (CONOPS) to detect radiation induced air fluorescence from special nuclear material (SNM) by passive and active means. - Investigated concept of a pulsed millimeter wave system, which detects radioactive sources in both passive and active interrogation scenarios. - Continued improvements to the Monte Carlo N-Particle (MCNP) code to enhance its modeling capability for specific problems. - Continued development of a large standoff, directionally oriented, monoenergetic gamma (e.g. laser Wakefield/inverse Compton scattering accelerator) source for integration with an active interrogation system. - Continued efforts to improve designs for higher acceleration gradients and reduced accelerator 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			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RF: *Detection and Forensics Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
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. - 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. ***FY 2014 Plans:*** - Continue to develop, accelerate development where appropriate, demonstrate, and field (prototype) upgraded technical capabilities for prompt diagnostics (under DISCREET OCULUS and MINIKIN ECHO) and debris sample collection, sample analysis, modeling to support nuclear device reconstruction and forensics data to lower uncertainties/increase confidence and improve timeliness of technical nuclear forensics (TNF) conclusions. Includes development of new debris collection, field analysis concepts, in-laboratory timeline improvements, new signature development, improved modeling and simulation capabilities, and other supporting technologies. - Continue development of methods to rapidly determine post-event nuclear weapon yields and reaction history by investigating alternative prompt nuclear weapons effects, effects on the environment, and developing/fielding prototype capabilities. - Continue identifying 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. - Continue development and improvements to an advanced algorithm to increase speed and reliability of isotope identification in fielded hand-held and portable detectors. - Continue to collaborate with international partners to develop a photon Bremsstrahlung capability for active interrogation of SNM. - 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.			
Accomplishments/Planned Programs Subtotals	45.570	44.998	40.454

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• 31/0603160BR: *Proliferation Prevention and Defeat*	72.980	76.298	74.556		74.556	75.219	77.505	79.198	79.891	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RF: *Detection and Forensics Technologies*

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

Successful completion of the individual digital dosimeter project.
Demonstrate military utility of active interrogation.
Successful development and operational acceptance of transitional detection technologies.
Successful demonstrations of forensics capabilities to support attribution involving both Radiological Dispersal and Improvised Nuclear Devices.
Successful demonstration of the capability to exfiltrate data to a remote platform.
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: More specific metrics associated with NTNF are classified.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RG: *Defeat Technologies*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
RG: *Defeat Technologies*	18.432	15.881	14.645	15.059	-	15.059	12.753	13.971	13.206	13.459	Continuing	Continuing

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

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

Note

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

A. Mission Description and Budget Item Justification

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

The 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 Departmental efficiency initiatives to reduce reliance on service support contractors.

The increase from FY 2013 to FY 2014 is predominately due to increased investment in Counter-WMD hard target defeat weapons development.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RG: *Defeat Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: RG: Defeat Technologies	15.881	14.645	15.059

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

FY 2012 Accomplishments:
- Selected the most promising and enhanced survivable energetic material fill and inert simulant for CWMD weapon development for future testing.
- Continued maturing advanced non-energetic WMD Defeat payload components.
- Began testing and demonstrations of non-energetic WMD Defeat payloads.
- Began reduced scale target testing of WMD Defeat payloads and capabilities.

Conducted subscale experiments to develop and verify prediction capability for countermeasure effects on projectile penetration.
- Continued advanced testing of WMD Defeat sub-munitions.
- Began integration of WMD Defeat sub-munitions into a weapon warhead.
- Developed and tested fuze well redundant data recorder for field testing of both legacy and developmental hard target defeat weapons.
- Began testing and demonstrations of CWMD weapons payloads for use against bulk chemical agent.
- Continued to explore new energetic CWMD payloads by performing sub-scale characterizations of the next generation survivable penetrator energetic material fill.
- Continued development of process modeling capability for non-kinetic-based CWMD and applied it to specific CWMD targets.
- Conducted flight testing of BDI Link Advanced Demonstrator (BLADE) system, demonstrating capability to relay Battle Damage Information (BDI) data.
- Continued to explore combining integration of kinetic and non-kinetic payloads into a single weapon for counter WMD.
- Determined the accuracy and precision of sampling equipment utilized in counter-WMD testing.
- Conducted initial 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.
- Completed testing with insensitive munitions and other High Energy fills to determine how well they can neutralize large quantities of WMD agent.
- Initiated testing for Bomb, Live Unit (BLU)-119/B conversion to safer, lower Life Cycle Cost payload fill.

FY 2013 Plans:
- Initiate 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.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RG: *Defeat Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
- 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 tail kit BDI systems to provide near-real-time munitions effectiveness estimates to the warfighter. - Demonstrate BDI system prototype. - Initiate potential WMD target access denial or denial-of-use technologies. - Evaluate small new inventory weapons effectiveness against WMD threats.			
FY 2014 Plans: - Mature an automated system for the analysis of electronics susceptibility to electromagnetic fields. - Continue classified components testing. - Begin classified integration and component design. - Continue testing in support of a WMD agent defeat penetrator bomb development focusing on development of low lifecycle cost payload fills. - Continue development of potential WMD target access denial or denial-of-use technologies. - Continue developing robust forensic tools for an automated analysis of susceptibility of electronics to electromagnetic fields. - Continue advanced testing of non-energetic WMD Defeat sub-munitions. - Continue small-scale testing of CWMD payloads. - Continue to explore integration of kinetic and non-kinetic capabilities into single payload for CWMD testing. - Continue testing and demonstrations of payloads capable of neutralizing large amounts of WMD agent. - Continue to catalog the accuracy and precision of WMD sampling equipment used in CWMD 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.			
Accomplishments/Planned Programs Subtotals	15.881	14.645	15.059

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RG: *Defeat Technologies*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• 31/0603160BR: *Proliferation Prevention and Defeat*	14.606	20.682	21.811		21.811	19.776	22.718	23.417	23.811	Continuing	Continuing

Remarks

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

Enhance the Nuclear Weapons Effects (NWE) Simulator Program at the West Coast Facility (WCF) that provides capability for Department of Defense (DoD) programs to validate and verify survivability of military hardware against a nuclear threat.

Development of cold x-ray effects capabilities that meet or exceed the current capabilities.

Demonstrate advanced warm x-ray experimental and computational capabilities to meet emerging DoD system survivability requirements.

Successful demonstration of Short Pulse Gamma simulator to support high temporal fidelity for validation of prompt gamma nuclear weapon effects on advanced electronics.

Successfully conduct nuclear weapon effects experimental campaigns to allow identification of x-ray effects phenomena.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RI: *Nuclear Survivability*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
RI: *Nuclear Survivability*	18.525	19.606	18.810	21.041	-	21.041	22.289	23.241	23.261	23.658	Continuing	Continuing

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

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

A. Mission Description and Budget Item Justification

The Nuclear Survivability project 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 decrease from FY 2012 to FY 2013 was predominately due to decreased in investment in nuclear weapons effects relative to a nonrecurring increase for a Short Pulse Gamma (SPG) simulation capability in FY 2012 and decreased investment in human survivability beginning in FY 2013.

The increase from FY 2013 to FY 2014 is predominately due to increased investment in nuclear weapons effects experimental capabilities.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: RI: Nuclear Survivability	19.606	18.810	21.041
Description: Project RI (Nuclear Survivability) provides the capability for DoD nuclear forces and their associated control and support systems and facilities in wartime to avoid, repel, or withstand attack or other hostile action, to the extent that essential functions can continue or be resumed after the onset of hostile action.			
FY 2012 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RI: *Nuclear Survivability*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
- Developed 45nm RadHard-By-Design mitigation techniques. - Investigated 32nm technology Total Ionizing Dose mitigation methods. - Demonstrated compatibility of 90nm RadHard by design library cells and macro with 90nm RadHard by process enhancements. - Completed fabrication and assembly of the Short Pulse Gamma (SPG) simulator core components. - Conducted laser-driven x-ray source demonstrations to support missile defense and satellite subsystem survivability. - Investigated x-ray sources on NIF to characterize the survivability of satellite solar arrays. - Developed high-fidelity warm x-ray sources to reduce the design margins for survivable mission critical systems. - Integrated fast-running urban radiation transport algorithms into operational code. - Initiated a five-year plan to sustain the test capabilities of the DTRA West Coast Facility.			
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). - Continue the sustainment of the test capabilities of the DTRA West Coast Facility.			
FY 2014 Plans: - RadHard-by-Design (RHBD) 45nm /32nm technology demonstration - Radiation effects on advanced technology testing and characterization. - Product Demonstration Vehicle (PDV) architecture and circuit layout designs for 45nm/32nm RHBD project. - Complete 45nm and 32nm Hardness Assurance Methods for Testing and Assurance Projects. - Transition radiation effects modeling and simulation project from planar 45nm / 32nm Electronic Design Automation to 28nm / 22nm Fin-Shaped Field Effect Transistors (FinFets). - Continue the sustainment of the test capabilities of the DTRA West Coast Facility. - Establish the Short Pulsed Gamma prototype as a test capability within the West Coast Facility for hardening and validation of military systems. - Demonstrate strategic level direct laser blow-off impulse test capability for two-dimensional configurations to support material modeling & simulation. - Perform a full-scale space interceptor telescope survivability test on National Ignition Facility (NIF) in collaboration with the Missile Defense Agency (MDA). - Demonstrate new pulsed power driven source designs for enhanced warm (>10 keV) X-ray outputs.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
- Implementation of combined radiation and burn, partial human body model in nuclear weapons effects code. - Initiate update of MIL-STD-188-125-1 High-Altitude Electromagnetic Pulse (HEMP) Protection For Ground-Based C4I Facilities Performing Critical, Time-Urgent Missions Part 1 Fixed Facilities. - Complete Verification Test of Modernization of Enterprise Terminals (MET) Hardened Transportable Terminal to MIL-STD-188-125-2. - Complete Consolidated Afloat Network and Enterprise Services (CANES) Military Standard. - Complete draft MIL-STD-4023 Maritime EMP Standard for surface ships.			
Accomplishments/Planned Programs Subtotals	19.606	18.810	21.041

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• 31/0603160BR: *Proliferation Prevention and Defeat*	5.388	6.129	6.016		6.016	5.971	6.283	6.903	6.941	Continuing	Continuing

Remarks

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

Enhance the Nuclear Weapons Effects (NWE) Simulator Program at the West Coast Facility (WCF) that provides capability for Department of Defense (DoD) programs to validate and verify survivability of military hardware against a nuclear threat.

Development of cold x-ray effects capabilities that meet or exceed the current capabilities.

Demonstrate advanced warm x-ray experimental and computational capabilities to meet emerging DoD system survivability requirements.

Successful demonstration of Short Pulse Gamma simulator to support high temporal fidelity for validation of prompt gamma nuclear weapon effects on advanced electronics.

Successfully conduct nuclear weapon effects experimental campaigns to allow identification of x-ray effects phenomena.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency			DATE: April 2013
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COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
RL: *Nuclear & Radiological Effects*	15.891	25.783	25.752	35.741	-	35.741	37.284	37.888	38.297	38.824	Continuing	Continuing

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

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

A. Mission Description and Budget Item Justification

The Nuclear and Radiological Effects project develops nuclear and radiological assessment modeling tools to support military operational planning, weapon effects predictions, and strategic system design decisions; 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.

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 2013 to FY 2014 is predominately due to increased investment for nuclear weapons effects for survivability, targeting support, and consequence of execution.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: RL: Nuclear & Radiological Effects	25.783	25.752	35.741
Description: Project RL (Nuclear & Radiological Effects) develops nuclear and radiological assessment modeling tools to support military operational planning, weapon effects predictions, and strategic system design decisions.			
FY 2012 Accomplishments: - Stood up the Nuclear Weapons Effects Network (NWEN) and began to do the following: - Modeled and coded development to perform analyses at all computational levels of fidelity and run times. - Re-initiated quality NWE science via balanced modeling and simulation and experimentation. - Focused initially on first-principles model development and Uncertainty Quantification. - Completed non-ideal Source Region Electromagnetic Pulse (SREMP) Study.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RL: *Nuclear & Radiological Effects*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
- Completed new version of United States Strategic Command's (USSTRATCOM) official strategic targeting code used to determine the probability of damage from nuclear weapon. - Updated trapped radiation belt model. - Completed 4 chapters of Effects Manual One (EM-1); published one edition of Joint Radiation Effects document, upgraded database of foreign nuclear weapon outputs for DoD and the Services. - Updated Nuclear Weapons Effects Database (NWEDS) used by the Army for survivability and targeting calculations. - Published MIL-STD-3023: High-Altitude Electromagnetic Pulse (HEMP) Protection for Military Aircraft - Completed HEMP Verification Test of a Missile Alert Facility. - Completed HEMP Verification Test of Satellite Communication Station at Thule, Greenland and recommended certification. - Completed HEMP Verification Test of Northwest Earth Terminal Complex. - Published MIL-STD-2169C: High-Altitude Electromagnetic Pulse (HEMP) Environment.			
FY 2013 Plans: - Prototype first principles urban effects model for nuclear detonations. - Deliver improved High Altitude Nuclear Environments (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 Effects Manual One (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. - Conduct Maritime EMP Standard Ship Test to provide improved techniques for testing Navy vessels against EMP threats. - Complete HEMP Verification Test of the National Military Command Center (NMCC). - Report on a Power Protection Experiment at Idaho National Laboratory. - Release of Electromagnetic Reliability and Effects Prediction (EMREP) Program version 4.0 and complete EMREP training. - Complete HEMP Verification Test of Satellite Communication Station at Fylingdales, UK.			
FY 2014 Plans: - Start Atmospheric Nuclear Environment Military Standard - Start Communication in Disturbed Environment Military Standard. - Complete Verification Test of Modernization of Enterprise Terminals (MET) Hardened Transportable Terminal to MIL-STD-188-125-2. - Complete draft MIL-STD-4023 , HEMP protection for maritime assets.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RL: *Nuclear & Radiological Effects*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
- Via the NWEN, model fire start to support USSTRATCOM's interest in Consequences of Execution, fire start experiments, and tunnel defeat. - Model Nuclear Infra-Red effects for global assessment of missile defense systems' capabilities. - Expand to include modeling nuclear detonations at lower altitudes - Update radar and IR system models - Update Open cavity System Generated Electro-magnetic Pulse SGEMP model to support satellite systems design - Modify input requirements of engineering level codes to take advantage of Redbook and Bluebook output - Model the effects of urban nuclear detonations for underground tunnels (e.g., subways) in support of infrastructure assessments. - Support NWEDS functionality with expanded targets and damage calculations, enhanced reports, plot rendering, combined and multiple weapon effects and Nuclear Weapons Database - Provide model for analysis of the high altitude nuclear environments, the effects of EMP and non-ideal air-blast on defense systems for an integrated net-centric application.			
Accomplishments/Planned Programs Subtotals	25.783	25.752	35.741

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• 117/0605000BR: *WMD Defeat Capabilities*	5.750	5.749	5.995		5.995	6.077	8.359	8.541	8.694	Continuing	Continuing

Remarks

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

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.

Continuously improve United States Strategic Command (USSTRATCOM) official strategic targeting capability to determine the consequences of execution from nuclear weapons.

Weapon Effects Steering Committee: Coordinate and integrate nuclear weapon effects needs, capabilities and programs across the United States and United Kingdom defense communities.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RM: *WMD Counterforce Technologies*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
RM: *WMD Counterforce Technologies*	18.255	16.089	18.969	16.617	-	16.617	16.919	17.032	17.137	17.458	Continuing	Continuing

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

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

Note

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

A. Mission Description and Budget Item Justification

The Weapons of Mass Destruction (WMD) Counterforce Technologies project 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 WMD targets, to include related 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 and simulation capability in the countering WMD planning tools, to include the Integrated Munitions Effects Assessment (IMEA) planning tool used for weaponeering and the Vulnerability Assessment and Protection Option (VAPO) planning tools used for 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/HDBTs. The Advanced Energetics Program also develops new high energy systems well above current 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. Using 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.

Program RM supports the National Strategy for Countering Biological Threat priority/focus area 3) Capability Expansion. DTRA is developing blast explosives technologies such as the EG Hybridized Enhanced Blast Explosive (HEBX) as well as reactive cases for explosives used for countering special targets including biological weapons. The approach is to develop an enhanced explosive fill that will envelop the target with a high temperature caustic environment that will kill any bio-agents released during the strike.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RM: *WMD Counterforce Technologies*

DTRA initiated efforts to develop and demonstrate advanced material science solutions to support WMD Counterforce missions. This effort investigates the relationship between the structure of materials at atomic or molecular scales and their macroscopic properties. The goal of this program is to provide a practical mechanism to develop, demonstrate and deliver novel materials for several WMD counterforce missions. Materials developed under this auspice will have use in these areas; Energetic Materials, Non-Kinetic defeat, Agent Defeat (Biological) and Interfacial materials for WMD Sensors

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 – WMD Counterforce Technologies to properly align mission responsibilities.

The decrease from FY 2013 to FY 2014 is predominately due to decreased investment in Advanced Energetics and DTRA Wargaming to fund increased investment in WMD Intelligence, Surveillance, and Reconnaissance activities.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: RM: WMD Counterforce Technologies	16.089	18.969	16.617
Description: Project RM (WMD Counterforce Technologies) provides (1) full-scale testing of counter WMD weapon effects, sensor performance, and weapon delivery optimization, (2) weapon effects modeling, and (3) the DTRA Experimentation Lab.			
FY 2012 Accomplishments: - Integrated first principle modeling codes into Graphical User Interface (GUI)-based hazard prediction models. - Facilitated Joint Concept Development & Experimentation (JCDE) for the C-WMD COI. - Investigated and explored developmental technologies, such as Virtual Worlds. - Analyzed, explored, and identified gaps and barriers associated with CWMD warfighter challenges. - Completed facilitation of the internal Continuity of Operations Table Top Experiment through the DTRA Experimentation Lab (DEL). - Planned, designed, executed, and analyzed warfighting experimentation in support of DTRA, and in coordination with the Services, Combatant Commands, Defense agencies, and the interagency as appropriate. - Performed annual cycle of requirements collection, challenge proposals, resource allocation, and tech support through High Performance Computing. - Supported two DTRA DoD high performance computing challenge projects, simulating hard target defeat scenarios and deflagration to detonation transitions. - Improved parallel scalability of important computational fluid dynamics (CFD) and computational structural mechanics (CSM) codes to reduce computational required time to deliver a solution. - Interfaced important CFD & CSM codes with analysis software to facilitate validation, sensitivity studies, and uncertainty quantification. - Developed capability to model equipment fragility for any generic equipment.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RM: *WMD Counterforce Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
- Conducted 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. - Completed blast door damage model verification and validation. - Conducted Phase 2 progressive collapse testing. - Finalized Internal Detonation testing for blast through building walls and finalized a human injury model. - Started testing near miss lethality for an additional inventory weapon. - Incorporated Second-order Hydrodynamic Automatic Mesh Refinement Code (SHAMRC) workshop recommendations into improved SHAMRC; compare the simulated results with test results. - Evaluated technology transfer to cruise missile payload using DTRA-developed reactive case technology. - Integrated enhanced blast explosives and reactive cases into designs for weapon payloads. - Studied performance of payloads based on enhanced blast explosives and reactive cases for agent defeat. - Began efforts to develop novel energy storage capabilities based on antimatter storage, super halogen chemistry, and 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. - Begin implementation of Advanced Targeting Assessment Capability (ATAC). - 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. - 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.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RM: *WMD Counterforce Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
- 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. ***FY 2014 Plans:*** - Complete Hybridized Enhanced Blast Explosive (HEBX)/Agent Defeat (AD) Payload Demo - Demonstrate capability to capture and store positron in Electromagnetic Field. - Develop generalized Equipment Fragility Model. - Develop Dynamic Pressure Model for bunkers. - Develop Blast Propagation Through Failed Walls Model. - Update Agent Release Model for container perforated translation/collision. - Optimize Computational Fluid Dynamics (CFD) (SHAMRC and Finite Element Flow Solver (FEFLO)) for fast calculations in complex tunnels. - Complete General Near Miss Lethality Model. - Perform annual cycle of requirements collection, challenge proposals, resource allocation, and technical support through High Performance Computing. - Enhance one HPC production code to better leverage capabilities of DoD high performance computers for improved modeling and simulation time to response. - Continue testing and model development for blast and fragment propagation through failing blast doors and multi-blast doors and deliver an initial model for integration in IMEA. - Continue lab and scale testing for validation of high fidelity models for penetration mechanics through ultra-high strength materials. - Validate a fast running model for progressive collapse analysis of steel buildings. - Integrate final blast through failed walls and doors with human injury prediction model into the Vulnerability Assessment and Protection Option (VAPO) planning tool. - Complete a generalized equipment fragility model. - Complete a model for blast propagation through bunker walls for inventory weapons. - Conduct a large scale test of hybrid enhanced blast explosives and reactive cases for defeat of biological agents using simulants. - Scale up synthesis of novel explosives, prepare their metalized composites and conduct field tests. - Develop real-time reachback requirements and gap solutions through wide area search Table Top Exercise.			
Accomplishments/Planned Programs Subtotals	16.089	18.969	16.617

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RM: *WMD Counterforce Technologies*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• 31/0603160BR: *Proliferation, Prevention and Defeat*	23.735	22.503	29.420		29.420	31.893	33.971	34.523	35.108	Continuing	Continuing

Remarks

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 2014 Defense Threat Reduction Agency			DATE: April 2013
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)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
RR: *Test Infrastructure*	13.509	16.641	13.782	14.591	-	14.591	14.867	15.460	16.057	16.337	Continuing	Continuing

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

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

A. Mission Description and Budget Item Justification

The Test Infrastructure project provides a unique national test bed capability for simulated Weapons of Mass Destruction (WMD) facility characterization, weapon-target interaction, and WMD facility defeat testing to respond to operational needs by developing and maintaining test beds used by the Department of Defense (DoD), the Services, the Combatant Commanders, and other federal agencies to evaluate the implications of WMD, conventional, and other special weapon use against U.S. military or civilian systems and targets. It leverages fifty years of testing expertise to investigate weapons effects and target response across the spectrum of hostile environments that could be created by 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 above ground facilities, cut-and-cover facilities, and deep underground tunnels. This capability does not exist anywhere else within the DoD and supports the counterproliferation pillar of the National Strategy to Combat WMD.

This project supports the National Strategy for Countering Biological Threat priority/focus area 3) Capability Expansion and 4) Leveraging Science. DTRA conducts an intergovernmental test program with the Defence Research and Development Canada (DRDC) for Biological Agent Defeat testing. In FY 2014 DTRA will continue research for Biological Re-aerosolization in conjunction with DoD/DHS/EPA to help develop precise measurement technologies for residual biological pathogens reentering air after settling—Canceled by DHS. In addition, DTRA supports the 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. Particularly in support of capability expansion, DTRA conducts Interagency Biological Restoration Demonstration (IBRD) testing in conjunction with the Department of Defense (DoD) and the Department of Homeland Security (DHS) to reduce the time and resources necessary to recover and restore wide urban areas, military installations, and critical infrastructure, following a biological incident, but is transitioning into TaCBRD. Additionally, DTRA is funding an internal Research program (Innovative Research Program) which examines the novel use of "MicroNeedles" for use in physiological monitoring and/or drug delivery; This project is being conducted by Sandia National Labs and the first phase will be completed by February 28, 2013.

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 - Counterforce Technologies, and reduced investment in test infrastructure environment restoration support and the WMD National Test Bed (TB).

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RR: *Test Infrastructure*

The increase from FY 2013 to FY 2014 is predominately due to the realignment of test bed facilities from RT-Target Assessment Technologies in Program Element (PE) 0603160BR to RR-Test Infrastructure in PE 0602718BR to better reflect the nature of those activities.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: RR: Test Infrastructure	16.641	13.782	14.591

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 2012 Accomplishments:
- Developed prototype Voice Over Internet Protocol (VOIP) technology that can transfer both classified and unclassified data, voice communications, video, etc., to support test program execution starting first quarter FY2012..
- Implemented updates and test infrastructure improvements to support revitalized Weapons Effects Phenomenology Program supporting DTRA test programs.
- Completed improvements to existing test infrastructure and test articles and constructed new test articles to support DTRA Detection Technology Program starting in first quarter FY 2012.
- Conducted 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.
- Supported 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.
- Conducted 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.
- Continued nuclear detection and forensics testing to prevent weapons grade material/dirty bombs from entering the U.S., U.S. Territories, and Allied Nations.
- Continued 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.
- Implemented environmental remediation and compliance activities at the Nevada National Security Site (NNSS), White Sands Missile Range (WSMR), and Kirtland Air Force Base (KAFB) in accordance with EPA, Safety, and Environmental guidelines throughout FY 2012.
- Supported 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.
- Implemented infrastructure and instrumentation upgrades to ensure test beds meet customers' advanced technology testing needs.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RR: *Test Infrastructure*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
- Continued documentation, support and prioritization of test infrastructure requirements. - Completed WMD Aerial Collection System (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. ***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 Re-aerosolization 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. - Continue 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. - 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 2014 Defense Threat Reduction Agency		DATE: April 2013
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 2012	FY 2013	FY 2014
- 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 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. - 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. ***FY 2014 Plans:*** - Continue CWMD testing/demonstration at NNSS to defeat credible and threat-based scenarios; continue with transition into several related projects/planned events through FY 2017. - Begin CWMD 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. - Continue research of Biological Re-aerosolization in conjunction with DoD/DHS/EPA to help develop precise measurement technologies for residual biological pathogens reentering air after settling. - Continue intergovernmental Biological Agent Defeat test program between DTRA and DRDC. - Continue testing in support of "Speed of Sound" nuclear forensic program estimated to continue through FY 2015. - 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 - Conduct testing in support of Treaty Verification Technology Program and Source Physics Experiment (SPE) to support Comprehensive Test Ban Treaty (CTBT) Initiatives, New START Warhead Verification, and detection and verification of Biological and Chemical Weapons. - Continue support of WMD 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 - 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 2014 Defense Threat Reduction Agency		DATE: April 2013
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 2012	FY 2013	FY 2014
- 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 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. - 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	16.641	13.782	14.591

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

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.
FY 2012 – 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 2012 - 87 Tests
FY 2013 - 90 Tests (projected)
FY 2014 - 76-90 Tests (projected)

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RT: *Target Assessment Technologies*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
RT: *Target Assessment Technologies*	0.845	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

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

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

A. Mission Description and Budget Item Justification

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 and 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 2012	FY 2013	FY 2014
Title: RT - Target Assessment Technologies	0.000	0.000	0.000
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 2012 Accomplishments:*** N/A			
Accomplishments/Planned Programs Subtotals	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 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 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• 28/0603160BR: *Proliferation, Prevention, and Defeat*	36.198	31.298	28.141		28.141	29.276	30.152	30.936	31.596	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RU: *Fundamental Research for Combating WMD*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
RU: *Fundamental Research for Combating WMD*	7.961	8.931	2.000	0.516	-	0.516	0.567	0.549	0.549	0.559	Continuing	Continuing

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

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

A. Mission Description and Budget Item Justification

The Fundamental Research for Combating WMD project conducts technology reviews of the Defense Threat Reduction Agency (DTRA) Basic Research Program to identify promising emerging science with potential to be matured into Counter WMD technologies. The advancement of technology and science into applied technology development efforts 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 DTRA applied technology programs. This effort serves as the bridge between the bench scientist and the applied technologist.

The decrease from FY 2012 to FY 2013 is predominately due to the significant reduction 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 – Information Science and Applications to perform strategic research and dialogues.

The decrease from FY 2013 to FY 2014 is predominately due to decreased investment in University Strategic Partnership (USP) activities.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: RU: Fundamental Research for Combating WMD	8.931	2.000	0.516
Description: Project RU (Fundamental Research for Combating WMD) 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 2012 Accomplishments: - Successfully expanded the Fundamental Research Broad Agency Announcement (BAA) to continue 10 years. - Identified and transitioned all suitable investigatory Science and Technology research and development projects to appropriate long-term sponsors for concept/design validation, prototype fabrication, testing, and fielding. - Initiated collaboration between scientists from Lawrence Livermore National Laboratory (LLNL) and the Laboratory for Laser Energetics (LLE) at the University of Rochester (UR), which will develop the DTRA time resolved x-ray spectrometer for basic and fundamental science, radiation effects, and other experiments on the National Ignition Facility (NIF). A time resolved x-ray spectrometer will be designed, fabricated and fielded on the NIF over a two-year period. The technical work began in the first quarter of FY 2013 and the first NIF experiment using the spectrometer will be performed in FY 2014.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 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 2012	FY 2013	FY 2014
- Continued "bridging" projects for early applied development of combating WMD technologies. Several FY 2012 awards advanced previously funded basic research grants: Quantifying Gamma/Neutron Discrimination in Gadolinium-Rich Real-time Neutron Detection Materials and Devices and Dynamics of exploding plasmas in a large magnetized plasma - Provided 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. ***FY 2013 Plans:*** - 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. ***FY 2014 Plans:*** - Provide technical and programmatic support to DTRA's basic research program.			
Accomplishments/Planned Programs Subtotals	8.931	2.000	0.516

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• 1/0601000BR: *DTRA Basic Research Initiative*	47.712		45.071		45.071	46.662	47.502	48.357	49.228	Continuing	Continuing

Remarks

D. Acquisition Strategy

Not Applicable

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Defense Threat Reduction Agency											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*					R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	301.571	279.166	275.022	274.033	-	274.033	275.880	287.174	294.124	297.958	Continuing	Continuing
RA: *Information Science and Applications*	4.815	13.354	7.455	2.431	-	2.431	1.934	2.415	2.351	2.381	Continuing	Continuing
RE: *Counter-Terrorism Technologies*	116.668	112.905	110.657	111.658	-	111.658	111.820	114.130	116.796	118.230	Continuing	Continuing
RF: *Detection and Forensics Technologies*	77.472	72.980	76.298	74.556	-	74.556	75.219	77.505	79.198	79.891	Continuing	Continuing
RG: *Defeat Technologies*	18.273	14.606	20.682	21.811	-	21.811	19.776	22.718	23.417	23.811	Continuing	Continuing
RI: *Nuclear Survivability*	15.702	5.388	6.129	6.016	-	6.016	5.971	6.283	6.903	6.941	Continuing	Continuing
RL: *Nuclear & Radiological Effects*	2.661	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
RM: *WMD Counterforce Technologies*	29.143	23.735	22.503	29.420	-	29.420	31.893	33.971	34.523	35.108	Continuing	Continuing
RR: *Test Infrastructure*	1.790	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
RT: *Target Assessment Technologies*	35.047	36.198	31.298	28.141	-	28.141	29.267	30.152	30.936	31.596	Continuing	Continuing

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

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

Note

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

A. Mission Description and Budget Item Justification

The Proliferation, Prevention and Defeat program element reduces Weapons of Mass Destruction (WMD) proliferation and enhances WMD defeat capabilities through advanced technology development. To accomplish this objective, seven project areas were developed: RA - Information Science and Applications, RE - Counter-Terrorism Technologies, RF – Detection and Forensics Technologies, RG - Defeat Technologies, RI - Nuclear Survivability, RM - WMD Counterforce Technologies,

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Defense Threat Reduction Agency	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*

and RT - Target Assessment Technologies. These projects support technology requirements in line with the Joint Functional Concepts (Chairman, Joint Chiefs of Staff Instruction 3170.01). The missions and plans of these projects are described below and in the R-2a Budget Exhibits.

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

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

Change Summary Explanation

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

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RA: *Information Science and Applications*	

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

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

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

Note

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

A. Mission Description and Budget Item Justification

The Information Science and Applications project provides (1) systems engineering and analysis support across all other projects, (2) advisory technical Reachback support on Weapons of Mass Destruction (WMD) effects and consequences, and (3) research and development support for cooperative programs, technology demonstrations, and vulnerability assessments that enhance foreign partner ability to assess, prevent, and respond to threats and events involving weapons of mass destruction. The systems engineering effort provides research and development with requirements, technology, architecture analyses and proof-of-principle capability necessary for making decisions on strategic planning, research and development investments, new initiatives, cooperation, ventures with new customers, and accomplishment of high-level, short notice special projects. This includes analysis of National, Department of Defense (DoD) and other Federal agencies' strategic guidance and plans in the combating WMD, Combating Terrorism and Homeland Defense arenas through analytical political-military and technical studies, workshops and conferences. The Technical Reachback effort provides 24 hour/7 days per week information and analyses on potential impacts of a WMD event to Warfighters and First Responders in consult with DTRA's Combating WMD Research and Development subject matter experts. This project also provides support to international CWMD science and technology cooperation by developing modifications, improvements, or new technologies and information tools suitable for foreign release and cooperative efforts. Further, this project provides the Defense Threat Reduction Agency (DTRA) on-site support to North Atlantic Treaty Organization (NATO) and Supreme Headquarters Allied Powers, Europe (SHAPE) with a current primary focus on support to U.S. European Command (USEUCOM), NATO, and SHAPE in combating WMD and maintaining the NATO nuclear deterrent. A significant element of this project includes support to Command Elements and the warfighting Combatant Commands (COCOMs) on strategies for reducing/countering the WMD threat in the COCOMs Areas of Responsibility. This project also provides for the solution to the Secretary of Defense mandate for DTRA to account, maintain, report, and track the National Nuclear Weapons Stockpile & Nuclear Weapon-Related Materiel during peacetime, crisis, and wartime. In support of national requirements necessary to maintain a viable nuclear deterrent, the Defense Integration and Management of Nuclear Data Services provides a platform to ensure continued sustainability and viability of the nuclear weapon stockpile. Finally, it conducts the development, validation and fielding of the Arms Control Enterprise System (ACES) as a part of the U.S. commitment under arms control treaties

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

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RA: *Information Science and Applications*

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

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

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

FY 2012 Accomplishments:
- Developed and innovate a Nuclear Weapon-Related Materiel (NWRM) module in Defense Integration and Management of Nuclear Data Services with the ability to evolve to keep up with emerging mainstream technologies to consolidate various DoD tracking systems into a single worldwide accountability system that provides the ability to account, maintain, report, and track NWRM during peacetime, crisis, and wartime.
- Continued to organize/conduct senior COCOM, Interagency, and International workshops, symposiums, and table top exercises to address key national/international strategies for reducing/combating the WMD threat.
- Continued to refine and enhance WMD lessons learned process with international staff and across the other COCOMs, incorporating lessons learned from partner activities.
- Continued to develop and update DTRA Support Plan as directed in the GEF to further Combating WMD mission across all theaters while balancing DTRA assets and managing risks as prioritized within the GEF.
- Continued to utilize institutionalized linkage with NATO/SHAPE and USEUCOM in international research and development collaboration to further develop similar international research and development collaboration within the Pacific Region in accordance with the GEF.
- Conducted strategic analyses and assessments on emerging WMD threats.
- Supported over 1, 400 requests for information, providing technical advisory reachback support on WMD effects and consequences.
- Developed, tested, and deployed Arms Control Enterprise System (ACES) New START Treaty (NST) Increments #2 and #3 in FY 2012, and Increment #4 in early FY 2013. The ACES NST will be at full operational capability (FOC) upon delivery of Increment #4, and no further software development is planned after that point.
- Began development and integration of agent based modeling capabilities, including network dynamics and propagation of infectious disease, with computation time in minutes instead of hours supporting Near Real Time Reachback.

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
- Began modifications and capability improvements to vulnerability assessment software and integrated WMD toolsets, including initial modularization of software architectures to allow for easy removal and optional replacement of engineering models. ***FY 2013 Plans:*** - Complete initial development and integration phase of agent based modeling capabilities with computation time in minutes instead of hours. - Conduct Near Real Time Reachback demonstration with nuclear and biological scenarios; demonstrate capability to model selected secondary and tertiary effects and impact of certain courses of action. ***FY 2014 Plans:*** - Continue modifications and capability improvements to vulnerability assessment software and integrated WMD.			
Accomplishments/Planned Programs Subtotals	13.354	7.455	2.431

C. Other Program Funding Summary ($ in Millions)

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

Remarks

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

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

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RE: *Counter-Terrorism Technologies*	

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

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

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

A. Mission Description and Budget Item Justification

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

The Counter WMD-Terrorism (CWMD-T) Counterproliferation (CP) research and development program is a collaborative effort with US Special Operations Command (USSOCOM) where the DTRA manages and sub-allocates funding directly to USSOCOM to develop warfighter-unique technologies in support of USSOCOM's Counterterrorism and Counterproliferation (CT/CP) mission. New CT/CP technologies are developed under USSOCOM management that provides warfighters with the operational capability to counter WMD threats.

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

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

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RE: *Counter-Terrorism Technologies*

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

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

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

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

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

FY 2012 Accomplishments:
- Continued development and transitioned new technologies for Joint U.S. Military Forces to counter WMD, enabling warfighters, specifically SOF, to improve their ability to detect, disable, interdict, neutralize, and destroy chemical, biological, and nuclear production, storage, and weaponization facilities. These efforts developed innovative technologies utilizing energetic, mechanical and alternative energies to improve the efficiencies and effectiveness of Joint U.S. Military Ground Force's offensive operations against CBRNE WMD production facilities.
- Developed and transitioned innovative counter-WMD tools designed to locate, identify, characterize, assess and attack WMD production and storage facilities with minimal to no collateral damage or loss of life.
- Continued funding of three 48-month technology solutions that began in FY 2010 and managed their progress in countering the proliferation of WMD.
- SCSP reached Full Operational Capability (FOC) while increasing support to COCOM planning efforts related to CWMD-T from previous levels.
- Developed systemic operational plans for integrating diplomatic, military, economic, financial, intelligence and law enforcement to counter proliferation of WMD and acquisition by known terrorist organizations.
- Began development of next generation imaging capabilities to allow Explosive Ordnance Disposal (EOD) forces advanced diagnostic capabilities.
- Continued work on Knowledge Management Objectives begun in FY 2010; continued to test the effects of RF signals on test objects and initiate a study of the effects of Radio Frequency (RF) signals on explosives.

FY 2013 Plans:

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RE: *Counter-Terrorism Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
- Continue other planned development and transition of new CP technologies for Joint U.S. Military Forces to counter WMD, enabling warfighters to improve their ability to detect, disable, interdict, neutralize, and destroy chemical, biological, and nuclear production, storage, and weaponization facilities. - Continue work on successive multi-year efforts to develop high fidelity test articles for EOD Device Defeat program. - Build EOD Device Defeat test objects for characterization and testing. - Continue work on Knowledge Management Objectives begun in FY 2010; continue to test the effects of RF signals on test objects and initiate a study of the effects of Radio Frequency (RF) signals on explosives. - Sustain the CWMD-T global dynamic picture of the operating environment for use by the DoD and USG Community of Interest. - Continue to support COCOM planning efforts related to CWMD-T. - Establish a collaborative virtual workspace (linked to dynamic SCSP data sets/feeds) that enables CWMD-T planning by geographically separated COCOMs. ***FY 2014 Plans:*** - Continue other planned development and transition of new CP technologies for Joint U.S. Military Forces to counter WMD, enabling warfighters to improve their ability to detect, disable, interdict, neutralize, and destroy chemical, biological, and nuclear production, storage, and weaponization facilities. - Continue work on successive multi-year efforts to develop high fidelity test articles and enhanced electronic test objects for the EOD Device Defeat program. - Develop impeded tools for IED triggers. - Continue to support COCOM planning efforts related to CWMD-T. - Continue multi-year efforts to develop and transition innovative CWMD tools designed to locate, identify, characterize, assess, and attack WMD production and storage facilities with minimal-to-no collateral damage or loss of life. - Build precision shaped charges using a proven manufacturing process through the use or modification of an existing shaped charge design. - Transition next generation imaging facilities to allow EOD forces advanced diagnostic capabilities. - Continue to improve and further enhance the usability and capability of CWMD-T global dynamic picture of the operating environment for use by the DoD and USG Community of Interest. - Continue to improve upon COCOM planning efforts related to CWMD-T to include the scheduled release of automated planning and analyst support tools for large-scale data management and information extraction. - Continue modeling efforts to include application and integration of models into SCSP's high performance computing architecture.			
Accomplishments/Planned Programs Subtotals	112.905	110.657	111.658

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RE: *Counter-Terrorism Technologies*

C. Other Program Funding Summary ($ in Millions)

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

Remarks

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

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

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RF: *Detection and Forensics Technologies*	

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

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

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

Note

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

A. Mission Description and Budget Item Justification

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

This project develops technologies, systems and procedures to detect, identify, track, locate, monitor and interdict strategic and improvised nuclear and radiological weapons, components, or materials in support of Department of Defense requirements for combating terrorism, counterproliferation and nonproliferation, homeland defense, and international initiatives and agreements. This project researches, develops, demonstrates, and transitions advanced technologies to improve operational capabilities to detect and identify nuclear and radiological weapons. It supports the attribution process through development, demonstration, and transition of improved post-detonation National Technical Nuclear Forensics (NTNF) capabilities in the areas of materials collection, debris diagnostics and materials analysis, and prompt diagnostics and device reconstruction. Efforts under this project also support international peacekeeping and nonproliferation objectives, on-site and aerial inspections and monitoring, on-site sampling and sample transport, and on- and off-site analysis to meet forensic, verification, monitoring and confidence-building requirements.

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

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

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

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RF: *Detection and Forensics Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
radiological weapons, components, or materials in support of Department of Defense (DoD) requirements for combating terrorism, counterproliferation and nonproliferation, homeland defense, and international initiatives and agreements. ***FY 2012 Accomplishments:*** - Continued design and fabrication of a prototype passive interrogation system for determining the location and signature of nuclear material. - Continued development of a rugged, mobile stand-off radiation detection system to provide mid to long-range detection and identification of nuclear materials in a field environment. - Completed development and testing of a small, light-weight, low-cost, and low-power real-time secondary dosimeter to provide a single design for the Navy, Army, and Air Force. Continue development on a real-time primary dosimeter providing beta, gamma, and neutron sensitivity. - Continued to develop and demonstrate alternative neutron detection technologies for replacement of helium-3 neutron detectors. - Continued developing and improving high performing microelectronics to determine the location of a radiological source. - Continued to develop, test, verify, assist with validation, and use additions to the Joint Semi-Automated Forces (JSAF) tool intended to provide nuclear detection simulation capability into the JSAF environment, an integrated, accurate, environment where the Concept of Operations (CONOPS) and physics of nuclear detection can be studied in tandem. - Continued to develop, accelerate development where appropriate, and demonstrate prototype upgraded technical capabilities for prompt diagnostics (under DISCREET OCULUS and MINIKIN ECHO) and debris sample collection, sample analysis, and integration of design modeling and forensic data to support development of technical conclusions. - Continued development of a fieldable rapid separation analysis capability to shorten the analysis timeline. - Continued development of methods to rapidly determine post-event nuclear weapon yields by investigating alternative prompt nuclear weapons effects, effects on the environment, and developing/fielding prototype capabilities. - Under the NTNF Joint Capability Technology Demonstration (JCTD), tested, trained, and operationally demonstrated/exercised (ODX) advanced post-detonation ground/airborne particulate collection and yield determination technologies. - Continued robotic air/ground sample collection improvements; completing development and prototype fielding of enhanced semi-autonomous ground and airborne debris collection capabilities in conjunction with completion of the NTNF JCTD in FY 2013. - Continued development of a fieldable standoff active interrogation system for standoff detection and warning of hidden and shielded nuclear material. - Continued to perform field demonstrations of new detector technologies for handheld detectors, distributed sensors, and vehicle mountable detector systems, to improve the ability of fielded forces to detect, locate, and identify nuclear materials in the battle space. - Continued to improve performance of new detector materials, imaging and spectroscopy systems, and signals analysis methods through rigorous laboratory and field testing.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RF: *Detection and Forensics Technologies*

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

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RF: *Detection and Forensics Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
- Continued cooperation and acceptance of DTRA developed detection technologies for operational development. - Conducted NIMBLE ELDER evaluation exercises assessing radiological/nuclear detection technology at the Technology Readiness Level (TRL) 3, 4, 5, and 6 development against the approved NIMBLE ELDER capability gaps. - Continued testing and evaluation nuclear forensics sample collection procedures through demonstrations and exercises. - Conducted a “Track 2” dialog between the US National Academy of Sciences and the Russian Academy of Sciences on transparency measures for arms control. - Conducted an investigation of technology needs and international partnership opportunities for technology development for a Future Multilateral START treaty. - Started the digitization and analysis of nuclear test data from Eurasian test sites.			
FY 2013 Plans: - Continue design and fabrication of prototype passive detection systems for determining the location and signature of nuclear material; test and characterize developmental prototype passive detection systems. - Continue to develop and demonstrate alternative neutron detection technologies for replacement of helium-3 neutron detectors. - Continue to test, verify, assist with validation, and use additions to the Joint Semi-Automated Forces (JSAF) tool intended to provide nuclear detection simulation capability into the JSAF environment, an integrated, accurate, environment where the Concept of Operations (CONOPS) and physics of nuclear detection can be studied in tandem. - Continue to perform field demonstrations of new detector technologies for handheld detectors, distributed sensors, and vehicle mountable detector systems, to improve the ability of fielded forces to detect, locate, and identify nuclear materials in the battle space. - Continue development of a large standoff, directionally oriented, monoenergetic gamma (e.g. laser Wakefield/inverse Compton scattering accelerator) source for integration with an active interrogation system. - Begin to exploit all-source nuclear threat signatures and characteristics to improve probability of nuclear threat detection and reduce the occurrence of false alarms. - Continue to develop, accelerate development where appropriate, demonstrate, and field (prototype) upgraded technical capabilities for post-detonation prompt diagnostics (under DISCREET OCULUS and MINIKIN ECHO) and debris sample collection, sample analysis, modeling to support nuclear device reconstruction, and forensics data to lower uncertainties/increase confidence in technical nuclear forensics (TNF) conclusions. This includes development of new debris collection and field analysis concepts and supporting technologies that take advantage of higher activity level samples and the ability to collect/analyze short-lived isotopes to significantly shorten the timeline. - Continue development of methods to rapidly determine post-event nuclear weapon yields and reaction history by investigating alternative prompt nuclear weapons effects, effects on the environment, and developing/fielding prototype capabilities.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RF: *Detection and Forensics Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
- Continue to improve performance of new detector materials, imaging and spectroscopy systems, and signals analysis methods through rigorous laboratory and field testing. - Continue expanding the functionality of the Mobile Field Kit – Radiological (MFK-R) by increasing radiological situational awareness and mission review to current and future suites of sensors. - Continue transitioning multiple near term technologies to generate prototypes and design packages to assist operational users. - Demonstrate Spiral 3 of the Arms Control Enterprise System (ACES) that addresses prototypes, new equipment, demos, telemetry - Complete the software operations manual for ACES to enable transition to a new O&M maintenance contract. - Develop a prototype for a future generation ACES system based on the analysis of alternatives. - Conduct a warhead imaging demonstration at an NNSA nuclear weapons facility. - Conduct a field demonstration of production signatures for the Fissile Material Cutoff Treaty. - Demonstrate the ability to simulate Underground Test (UGT) Electromagnetic Pulse (EMP) signatures in a field experiment in partnership with NNSA. - Continue development of the next generation NIMBLE ELDER network technologies. - Continue operational characterization of the emerging radiological active detection prototypes. - Continue development of the Force protection improvement for NIMBLE ELDER detection equipment. - Continue development of NIMBLE ELDER maritime detection capabilities. - Conduct NIMBLE ELDER evaluation exercises assessing R/N detection technology at the TRL 3, 4, 5, & 6 level of development against the approved NIMBLE ELDER capability gaps. - Accelerate the development of non-radiological detection S&T projects.			
FY 2014 Plans: - Continue near-source strong motion-small scale tests and high fidelity analysis for detection and identification of low yield and evasive testing. - Conduct additional laboratory experiments with lasers to assess shock/seismic and electromagnetic signatures from underground nuclear tests including the first decoupling experiments with the National Ignition Facility - Conduct warhead imaging experiments and demonstrations for warheads deployed on strategic launch and delivery systems that could lead to adoption of this technology for verification of future START treaties. - Down select to the most promising warhead characterization approach for application to future START treaties. - Test and transition a prototype version of the Knowledge Management Strategic Information System software for Future START and other treaty database and notification needs. - Field a prototype for an on-site inspection system and virtual training tool for nuclear materials production monitoring in support of the Fissile Material Cutoff Treaty and the Army nuclear disablement mission			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	**R-1 ITEM NOMENCLATURE** PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	**PROJECT** RF: *Detection and Forensics Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
- Develop and demonstrate advanced materials for particulate and gaseous radionuclides to detect underground nuclear testing in support of Air Force and international treaty monitoring requirements - Conduct international partnership high explosive tests to calibrate seismic and infrasound international monitoring stations. - Continue preparations for R/N detector program of record decisions. - Expand the level of non-radiological sensor support for R/N search operations. - Continue to develop, accelerate development where appropriate, demonstrate, and field (prototype) upgraded technical capabilities for prompt diagnostics (under DISCREET OCULUS and MINIKIN ECHO) and debris sample collection, sample analysis, modeling to support nuclear device reconstruction, and forensics data to lower uncertainties/increase confidence and improve timeliness of technical nuclear forensics (TNF) conclusions. Includes development of new debris collection, field analysis concepts, in-laboratory timeline improvements, new signature development, improved modeling and simulation capabilities, and other supporting technologies. - Continue development of methods to rapidly determine post-event nuclear weapon yields and reaction history by investigating alternative prompt nuclear weapons effects, effects on the environment, and developing/fielding prototype capabilities. - Continue exploiting all-source nuclear threat signatures, characteristics, and corresponding detection modalities; develop the proper tipping, queuing, and data fusion techniques and algorithms to enable the rapid and effective accumulation of all-source intelligence on nuclear threat scenarios. - Continue design and fabrication of prototype passive detection systems for determining the location and signature of nuclear material; test and characterize developmental prototype passive detection systems. - Continue to develop and demonstrate alternative neutron detection technologies for replacement of helium-3 neutron detectors. - Complete the development of a modular based detection system using near term technologies to generate prototypes and design packages to assist operational users. - Complete development of room temperature high-resolution spectrometers to determine signature of nuclear material. - Continue to develop CWMD network technologies. - Continue the development of force protection modifications to R/N detector technologies. - Develop and assess software improvements to current R/N detector technologies. - Expand the development of CWMD/Technical Support Group training technologies for R/N search equipment.			
Accomplishments/Planned Programs Subtotals	72.980	76.298	74.556

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RF: *Detection and Forensics Technologies*

C. Other Program Funding Summary ($ in Millions)

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

Remarks

D. Acquisition Strategy

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

E. Performance Metrics

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

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

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

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

Successful operational development and operational acceptance of transitional detection technologies.

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

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RG: *Defeat Technologies*	

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

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

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

Note

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

A. Mission Description and Budget Item Justification

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

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

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

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

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RG: *Defeat Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
FY 2012 Accomplishments: - Developed Integrated Precision Ordnance Delivery System (IPODS) preliminary Hardware Design and Software Architecture Design. - Continued work on improving the ability of computer models that show weapons effects so that the WMD agent defeat characteristics are built into those models. - Conducted computerized fit checks on F-15E, B-52, and B-2 aircraft carriage platforms and perform scale model IPODS wind tunnel testing. - Examined alternate payload candidates for potential integration into IPODS baseline design. - Advanced the development of a diagnostic tool that improves upon the ability to measure the effects of new weapons that defeat WMD. - Initiated development of Modular Autonomous Countering WMD System (MACS) and concept of operation architecture. - Began development of a capability that will allow the US to attack WMD in 'soft' targets like surface structures, while minimizing the spread of contamination. - Developed initial MACS prototype to demonstrate design concepts will meet requirements. - Began Kinetic Fireball sub-munitions into warhead. - Conducted High Power Microwave disruption and forensics testing. - Completed Counter Electronics High Power Microwave Advanced Missile Project (CHAMP) Joint Concept Technology Demonstration (JCTD) Operational Utility Assessment against a WMD target.			
FY 2013 Plans: - Continue improvements for defeat of WMD in soft targets. - Continue maturing diagnostic capability to meet emerging needs and field improved capabilities for agent defeat. - Complete Heated And Mobile Munitions Employing Rockets (HAMMER) Advanced Technology Demonstration (ATD) weapon design, critical component testing, and payload subscale bio defeat tests - Conduct MACS Underground Communication proof-of-principle demonstration in a realistic environment. - Complete IPODS Phase II Preliminary Design. - Initiate IPODS Phase III, Detailed Development & System Level Test. - Issue MACS Phase III First Generation System Concept Request for Proposal.			
FY 2014 Plans: - Continue improvements for defeat of WMD in soft targets. - Continue maturing diagnostic capability to meet emerging needs and field improved capabilities for agent defeat. - Complete Heated and Mobile Munitions Employing Rockets (HAMMER) System integration testing.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RG: *Defeat Technologies*

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

C. Other Program Funding Summary ($ in Millions)

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

Remarks

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

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

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RI: *Nuclear Survivability*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
RI: *Nuclear Survivability*	15.702	5.388	6.129	6.016	-	6.016	5.971	6.283	6.903	6.941	Continuing	Continuing

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

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

A. Mission Description and Budget Item Justification

The Nuclear Survivability project develops and demonstrates Radiation Hardened Microelectronics (RHM) for nuclear hardening and survivability of Department of Defense's (DoD) systems and provides for the execution of force-on-force evaluations and nuclear weapons surety efforts to enhance the protection of nuclear resources.

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

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

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

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

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

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

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RI: *Nuclear Survivability*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Description: Project RI (Nuclear Survivability) provides the capability for DoD nuclear forces and their associated control and support systems and facilities in wartime to avoid, repel, or withstand attack or other hostile action, to the extent that essential functions can continue or be resumed after the onset of hostile action. ***FY 2012 Accomplishments:*** - Developed 90nm Radiation Hardening By Design (RHBD) qualification vehicle for Application Specific Integrated Circuit (ASIC) design flow capability. - Continued investigation of 45nm RHBD mitigation techniques on a technology characterization vehicle. - Demonstrated 45nm RHBD Test Circuit Vehicle. - Demonstrated initial 90nm radiation hardened 64Mb Static Random Access Memory (SRAM). - Conducted Mighty Guardian XV Force-on-Force test and evaluated nuclear security policy for waterfront restricted areas at Naval Base Kings Bay, GA. - Initiated planning for Mighty Guardian XVI Force-on-Force test to evaluate nuclear security policy for Prime Nuclear Airlift Forces (PNAF) and On-Base Convoys at 377th Air Base Wing, Kirtland AFB, NM. - Conducted research, development, test, and evaluation of physical security technologies designed to enhance protection of the nuclear stockpile as determined by the Services. ***FY 2013 Plans:*** - Transition 90nm ASIC Qualified Manufacturer List radiation hardened microelectronics activity to user community - Transition 90nm radiation hardened 64Mb Static Random Access Memory (SRAM) to user community - Conduct engineering studies in support of and continue planning Mighty Guardian XVI Force-on-Force test to evaluate nuclear security policy for Prime Nuclear Airlift Forces (PNAF) and On-Base Convoys at 377th Air Base Wing Headquarters, Albuquerque, NM. - Conduct research, development, test, and evaluation on physical security technologies designed to enhance protection of the nuclear stockpile as determined by the Services. ***FY 2014 Plans:*** - Test and characterize radiation effects on advanced technology testing and characterization. - Conduct engineering studies in support of and plan for Mighty Guardian XVII Force-on-Force test to evaluate nuclear security policy for Navy Limited Areas at Strategic Weapons Facility Pacific, NSB Kitsap, and Washington. - Conduct research, development, test, and evaluation on physical security technologies designed to enhance protection of the nuclear stockpile as determined by the Services.			
Accomplishments/Planned Programs Subtotals	5.388	6.129	6.016

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RI: *Nuclear Survivability*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• 25/0602718BR: *WMD Defeat Technologies*	19.606	18.810	21.041		21.041	22.289	23.241	23.261	23.658	Continuing	Continuing

Remarks

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

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

Successful completion of Mighty Guardian exercises is measured by completing all necessary planning and logistics steps, troops arriving when required, training completed, execution of the exercise, redeployment of forces, and publishing a final report within 90 days of completion.

Successful completion of research, development, test, and evaluation for physical security technologies is determined by performers completing the project on-time and within budget, all stated tasks in the statement of work/objectives being met, proper reporting and coordination of decision areas, receipt of final reports closing out the project, and transitioning the project to the requesting Service.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency			DATE: April 2013
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COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
RL: *Nuclear & Radiological Effects*	2.661	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

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

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

A. Mission Description and Budget Item Justification

The Nuclear and Radiological Effects project develops nuclear and radiological assessment modeling tools to support military operational planning, weapon effects predictions, and strategic system design decisions. This project consolidates validated Defense Threat Reduction Agency modeling tools into a net-centric environment for integrated functionality; predicts system response to nuclear and radiological weapons producing electromagnetic, thermal, blast, shock and radiation environments - key systems include Nuclear Command and Control System, Global Information Grid, missiles, structures, humans and environment; provides detailed adversary nuclear infrastructure characterization to enhance counterforce operations and hazard effects; conducts analyses in support of nuclear and radiological Science and Technology and addresses the priority needs of the Combatant Commands and the Department of Defense; develops and provides electromagnetic pulse assessment capabilities to support national and military operational planning, weapon effects predictions, and national strategic systems designs; and develop foreign nuclear weapon outputs. Related funding for this project can be found in the WMD Defeat Technologies: 0602718BR, budget exhibit.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: RL - Nuclear & Radiological Effects	0.000	0.000	0.000
Description: Project RL develops nuclear and radiological assessment modeling tools to support military operational planning, weapon effects predictions, and strategic system design decisions. Related funding for this project can be found in the WMD Defeat Technologies: 0602718BR, budget exhibit.			
FY 2012 Accomplishments: N/A			
Accomplishments/Planned Programs Subtotals	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

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

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RL: *Nuclear & Radiological Effects*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• 124/0605000BR: *WMD Defeat Capabilities*	5.750	5.749	5.995		5.995	6.077	8.359	8.541	8.694	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RM: *WMD Counterforce Technologies*	

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

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

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

Note

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

A. Mission Description and Budget Item Justification

The Weapons of Mass Destruction (WMD) Counterforce Technologies project develops, integrates, demonstrates and transitions emerging/innovative technologies to support the counter WMD Mission. This activity specifically focuses on two critical components in countering the WMD threat:
Develop end-to-end planning capabilities including weaponeering tools to aid the Combatant Commander's (COCOM) targeting and weapons officers in choosing the proper weapon, fuze, and employment parameters to optimize the defeat of WMD and related hard targets. Deliver modernized, validated and fast running attack planning tools and integrating software. Leverage attack planning tools to support force protection planners and vulnerability assessment teams.
Develop, integrate, demonstrate and transition emerging/innovative technologies to provide the warfighter with an enhanced near real-time combat and battle damage assessment capability. Capability is achieved through the development of Unmanned Aerial Systems (UAS) and weapon-based sensors, platforms, taggants, seekers and other innovative technologies to; remotely sense, identify, track and target WMD-related threats; perform battle damage assessment/indication of strikes against these threats; and locate, track, collect, detect, selectively identify, and characterize Chemical Weapon and Biological Weapon aerosol agents released during these WMD counterforce strikes.

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

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

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

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RM: *WMD Counterforce Technologies*

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

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

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

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

FY 2013 Plans:
- Continue to support the Combatant Commands with the further refinement and development of operation center critical technologies that will enhance the capability of rapid response in relation to next generational reachback capabilities.
- Continue the effort to integrate first principle nuclear fallout modeling codes into GUI-based hazard prediction models.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RM: *WMD Counterforce Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
- Provide TWAC academic sessions and targeting recommendation packages supporting Combatant Command (COCOM) requirements. - Deliver Vulnerability Assessment Protection Option (VAPO) version 6.0 with improved prediction of chemical/biological threats; improved explosive effects, progressive collapse, and infrastructure modeling; incorporation of the U.K.'s Human Injury Prediction code; and new forward operating base modeling capability to support combatant commands. - Demonstrate miniaturized chemical and radiological sensors with radio frequency tags designed to enhance counter-WMD persistent surveillance, intelligence and reconnaissance. - Complete the Autonomous Reconnaissance Infrared Electro-optical Loitering (ARIEL) vehicle final design, in support of combating WMD long range sensor battle damage assessment. - Complete WACS (U.S. Navy variant) Preliminary Design. - Develop DTRA Spiral Sensors for CWMD Tag, Track and Locate (TTL) Program.			
FY 2014 Plans: - Continue to support the Combatant Commands with the further refinement and development of operation center critical technologies that will enhance the capability of rapid response in relation to next generational reachback capabilities. - Complete the effort to integrate first principle nuclear fallout modeling codes into GUI-based hazard prediction models. - Continue development of capability to model secondary and tertiary effects supporting optimal course of action and tactical decisions for WMD operations, including power and communication infrastructure. - Begin development of technologies and methods for comprehensive WMD consequence assessment to potentially include PMESII (Political, Military, Economic, Social, Infrastructure, and Information) implications – will support USSTRATCOM's consequence of execution analyses. - Deliver IMEA 11.1 (Near Miss Lethality/Multi-Hit/Ultra-High Performance Concrete (UHPC) Penetration/LCP Enhancements). - Deliver VAPO 6.1 (Improved Blast Model/Glass Curtain Wall Model). - Deliver TWAC academic sessions and targeting recommendation pages supporting COCOM requirements. - Demonstrate Silent Scout Chemical/Rad Sensor Delivery – Other Government Agency (OGA). - Demonstrate Nano-scale Transformational Rad Tag. - Continue WACS and Army Shadow UAS integration efforts and Air Worthiness Certification. - Develop WMD Intelligence, Surveillance and Reconnaissance (ISR) system architecture. - Conduct WMD ISR +signature characterization and phenomenology research. - Continue development and integration of agent based modeling capabilities, including secondary and tertiary effects linked with social behavior resulting from WMD insult. - Develop parallel version of transport and dispersion code to allow faster and more complex data analysis execution on high performance computing resources.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RM: *WMD Counterforce Technologies*

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

C. Other Program Funding Summary ($ in Millions)

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

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Standoff detection range of Weapons of Mass Destruction (WMD) reconnaissance system.
Number of new capabilities delivered to Combatant Commands (COCOMs).
Number of weaponeering solutions delivered to COCOMs.
Increase automation of the analytic process used by Defense Threat Reduction Agency Reachback, DTRA Operations Center and the U.S. Strategic Command Center for Combating WMD.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RR: *Test Infrastructure*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
RR: *Test Infrastructure*	1.790	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

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

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

A. Mission Description and Budget Item Justification

The Test Infrastructure project provides a unique national test bed capability for simulated Weapons of Mass Destruction (WMD) facility characterization, weapon-target interaction, and WMD facility defeat testing to respond to operational needs by developing and maintaining test beds used by the Department of Defense (DoD), the Services, the Combatant Commanders, and other federal agencies to evaluate the implications of WMD, conventional, and other special weapon use against U.S. military or civilian systems and targets. It leverages fifty years of testing expertise to investigate weapons effects and target response across the spectrum of hostile environments that could be created by proliferant nations or terrorist organizations with access to advanced conventional weapons or WMD (nuclear, biological and chemical). The project maintains testing infrastructure to support the testing requirements of warfighters, other government agencies, and friendly foreign countries on a cost reimbursable basis. It creates testing strategies and a WMD Test Bed infrastructure focusing on the structural response of buildings and Hard & Deeply Buried Targets that house nuclear, biological, and chemical facilities. It provides support for full and sub-scale tests that focus on weapon-target interaction with fixed soft and hardened facilities to include above ground facilities, cut-and-cover facilities, and deep underground tunnels. This capability does not exist anywhere else within the DoD and supports the counterproliferation pillar of the National Strategy to Combat WMD. Related funding for this project can be found in the WMD Defeat Technologies; 0602718BR, budget exhibit.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: RR - Test Infrastructure	0.000	0.000	0.000
Description: Project RR provides a unique national test bed capability for simulated Weapons of Mass Destruction (WMD) facility characterization, weapon-target interaction, and WMD facility defeat testing to respond to operational needs by developing and maintaining test beds used by the Department of Defense (DoD), the Services, the Combatant Commanders, and other federal agencies to evaluate the implications of WMD, conventional, and other special weapon use against U.S. military or civilian systems and targets. Related funding for this project can be found in the WMD Defeat Technologies: 0602718BR, budget exhibit. ***FY 2012 Accomplishments:*** N/A			
Accomplishments/Planned Programs Subtotals	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RR: *Test Infrastructure*

C. Other Program Funding Summary ($ in Millions)

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

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RT: *Target Assessment Technologies*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
RT: *Target Assessment Technologies*	35.047	36.198	31.298	28.141	-	28.141	29.267	30.152	30.936	31.596	Continuing	Continuing

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

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

A. Mission Description and Budget Item Justification

For some Weapons of Mass Destruction (WMD) targets and hard and deeply buried targets (HDBTs), physical destruction may not be possible, practical, or desirable with current conventional weapons and employment techniques. It may be possible or preferable, to achieve operational objectives by denying or disrupting the mission or function of the target facility. Functional defeat, however, requires extensive and highly detailed analysis of the target. The functional defeat process includes finding and identifying a facility, characterizing its function and physical layout, determining its vulnerabilities to available defeat mechanisms, planning and executing an attack, assessing damage, and if necessary, suppressing reconstitution efforts and re-attacking the facility. Target Assessment Technologies develops for the Combatant Commands (COCOMs) and the Intelligence Community (IC) the analytical tools and process required to find and characterize WMD targets and HDBTs and then, in near-real-time, assessing the results of attacks against those targets. Overall objectives are to develop new methodologies, processes and technologies for detecting, locating, identifying, physically and functionally characterizing, modeling, and assessing new and existing hard and deeply buried targets to support physical or functional defeat. Applying these processes to WMD time-dependent target characterization and threat analysis present a further technical challenge. The Target Assessment Technologies project is meeting this challenge through three subordinate and related activities: (1) Targeting and Intelligence Community Technology Development; (2) Find, Characterize, Assess Technology Development; and (3) Counter-WMD Analysis Cell (C-WAC) Technology Development.

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

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

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

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RT: *Target Assessment Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: RT: Target Assessment Technologies	36.198	31.298	28.141

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

FY 2012 Accomplishments:
- Demonstrated Integrated Sensor System (ISS) sensor mission planning and data fusion capabilities as part of the USNORTHCOM Rapid Reaction Tunnel Detection (R2TD) Joint Concept Technology Demonstration (JCTD).
- Demonstrated Integrated Sensor System (ISS) sensor mission planning and data fusion capabilities as part DTRA's Integrated Technology Demonstration 1 (ITD-1).
- Developed and demonstrated C-WAC capability to perform strategic level analysis of adversary WMD programs in support of the Intelligence Community (IC) and COCOMS.
- Developed and demonstrated an Underground Targeting and Analysis System (UTAS) version that combines buildings, bunkers and tunnels into a common operating picture (COP) for support of IC and COCOM target analysis. Deliverables delayed until September 2013 due to UTAS time required to fix unexpected software problems.
- Demonstrated a UTAS version that integrates analysis of facilities and WMD functional process models for enhanced functional characterization of WMD targets.
- Continued target characterization training for the UGF and WMD target defeat communities.

FY 2013 Plans:
- Demonstrate ISS software suite in realistic field conditions in two mission profiles.
- Validate C-WAC Nuclear Fuel Cycle model for support of COCOM and IC counter-WMD analysis.
- Demonstrate an intermediate analytical tool for the characterization of dual-use technologies related to the possible development of biological weapons (BW) by potential adversaries.
- Deliver UTAS modeling capability for support of IC and COCOM thermal WMD process analysis and characterization.
- Continue target characterization technical training for the UGF and WMD target defeat communities.

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

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603160BR: *Counterproliferation Initiatives - Proliferation, Prevention and Defeat*	PROJECT RT: *Target Assessment Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
- Provide target characterization training for the UGF and WMD target defeat communities.			
Accomplishments/Planned Programs Subtotals	36.198	31.298	28.141

C. Other Program Funding Summary ($ in Millions)

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

Remarks

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

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

By the end of FY 2014, increase WMD target characterization capability through successful incorporation of WMD systems and process characterization modeling and assessment capabilities into the UTAS functionality.

By the end of FY 2014, improve UTAS analysis of weapons effects on WMD targets through integration of models for analysis and assessment of weapons effects on a broader range of WMD-related equipment.

By the end of FY 2014, demonstrate improved sensor-on-node data fusion capability.

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

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Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Defense Threat Reduction Agency											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 5: *System Development & Demonstration (SDD)*					R-1 ITEM NOMENCLATURE PE 0605000BR: *WMD Defeat Capabilities*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	7.826	5.750	5.749	12.901	-	12.901	12.967	15.518	15.941	16.194	Continuing	Continuing
RF: *Detection and Forensics Technologies*	-	0.000	0.000	6.906	-	6.906	6.890	7.159	7.400	7.500	Continuing	Continuing
RL: *Nuclear & Radiological Effects*	7.826	5.750	5.749	5.995	-	5.995	6.077	8.359	8.541	8.694	Continuing	Continuing

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

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

A. Mission Description and Budget Item Justification

This program element supports the development of system capabilities for the Countering Weapons of Mass Destruction (CWMD) mission. This funding specifically supports (1) the development of collaborative CWMD analysis capabilities between DoD and key interagency and international partners through a globally accessible net-centric framework in the form of the Integrated Weapons of Mass Destruction Toolset (IWMDT) and (2) technologies to meet national International Monitoring System (IMS) technology requirements in support of implementation, compliance, monitoring, and inspection for existing and emerging nuclear arms control activities under the Nuclear Arms Control Technology (NACT) program.

The WMD Defeat Capabilities program element supports the National Strategy for Countering Biological Threats priorities, and Weapons of Mass Destruction (WMD) monitoring requirements validated by the Office of the Under Secretary of Defense, Acquisition, Technology, and Logistics (OUSD AT&L). The general strategy spells out four focus areas: 1) Promote global health security efforts through building and improving international capacity to prevent, detect, and respond to infectious disease threats, whether caused by natural, accidental, or deliberate events, 2) Establish and reinforce norms against the misuse of the life sciences, 3) Expand of our capability to prevent, attribute, and apprehend those engaged in biological weapons proliferation or terrorism, with a focus on facilitating data sharing and knowledge discovery to improve integrated capabilities (Capability Expansion); and 4) Leveraging science, technology, and innovation through domestic and international partnerships and agreements to improve global capacity to respond to and recover from biological incidents (Leveraging Science). In addition to the broad priorities, there are specific objectives to support the WMD monitoring through Research, Development, Testing, and Evaluation (RDTE) in support of implementation, compliance, monitoring, and inspection for existing and emerging nuclear arms control activities. Details are provided in the R-2a exhibits.

Project RF-Detection and Forensics Technologies supports the Nuclear Arms Control Technologies (NACT) Program, conducting Research, Development, Testing, and Evaluation (RDT&E) to meet International Monitoring System (IMS) technology requirements in support of implementation, compliance, monitoring, and inspection for existing and emerging nuclear arms control activities.

Project RL-Nuclear & Radiological Effects develops and provides a 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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Defense Threat Reduction Agency	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605000BR: *WMD Defeat Capabilities*

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	5.888	5.749	5.995	-	5.995
Current President's Budget	5.750	5.749	12.901	-	12.901
Total Adjustments	-0.138	0.000	6.906	-	6.906
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.138	-			
• Program Transfer: Nuclear Arms Control Technology (NACT) Program	-	-	6.906	-	6.906

Change Summary Explanation

The decrease from the previous President's Budget submission in FY 2012 is due to the internal SBIR transfer. The increase in FY 2014 is due to the transfer of the Nuclear Arms Control Technology (NACT) program from the United States Army to the Defense Threat Reduction Agency.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605000BR: *WMD Defeat Capabilities*	PROJECT RF: *Detection and Forensics Technologies*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
RF: *Detection and Forensics Technologies*	-	0.000	0.000	6.906	-	6.906	6.890	7.159	7.400	7.500	Continuing	Continuing
Quantity of RDT&E Articles												

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

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

A. Mission Description and Budget Item Justification

The Nuclear Arms Control Technology (NACT) Program provides Research, Development, Testing, and Evaluation (RDTE) to meet International Monitoring System (IMS) technology requirements in support of Comprehensive Nuclear Test Ban Treaty implementation, compliance, monitoring, and inspection and other existing and emerging nuclear arms control activities. The project directly provides for the US contribution to the IMS and addresses Weapons of Mass Destruction (WMD) monitoring requirements validated by the Office of the Under Secretary of Defense, Acquisition, Technology, and Logistics (OUSD AT&L). This project conforms to the Administration's research and development priorities as related to WMD arms control and disablement. Technical assessments are made to provide the basis for sound project development, evaluate existing programs and provide the data required to inform compliance assessments and support US monitoring policy and decision-makers and negotiation teams. The DTRA conducts technology developments and system improvement projects to ensure these monitoring capabilities are available when required.

Primary emphasis is on improved sensor sustainability, availability and detection capabilities against a wide range of threat or event origins and enhanced monitoring system sustainability and availability. The program includes development of monitoring and analysis equipment and capabilities and procedures for data exchanges, inspections, and analyses. The technologies and procedures developed in the NACT program provide a vital source of information on treaty mandated equipment and procedures that are extensively used by US and international agencies. This project also supports the warfighting capability area of combatting WMD.

The increase from FY 2013 to FY 2014 is due to the transfer of the Nuclear Arms Control Technology (NACT) program to the Defense Threat Reduction Agency (DTRA). The NACT program will transfer from United States Army Space Missile Development Command (SMDC) to DTRA beginning in FY 2014.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: RF - Detection and Forensics Technologies	0.000	0.000	6.906
Description: Project RF-Detection and Forensics Technologies supports the Nuclear Arms Control Technologies (NACT) Program, conducting Research, Development, Testing, and Evaluation (RDT&E) to meet International Monitoring System (IMS) technology requirements in support of implementation, compliance, monitoring, and inspection for existing and emerging nuclear arms control activities.			
FY 2012 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605000BR: *WMD Defeat Capabilities*	PROJECT RF: *Detection and Forensics Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
N/A ***FY 2013 Plans:*** N/A ***FY 2014 Plans:*** -Continue support of OSD treaty management objectives and continue participating in joint US-International Comprehensive Test Ban Office Provisional Technical Secretariat (PTS) sponsored technology development exchanges and developmental exercises in support of technology development and IMS operations and maintenance objectives. - Continue prototype sensor development, station calibration, and metrology planning. - Continue development of monitoring station array element calibration with focus on developing in-situ array calibration and performance monitoring capabilities. Conduct signal capture and identification studies to reduce signal clutter, false alarms, and improve noise rejection methods and algorithms. - Continue planning to evaluate options for performing experiments or demonstrations to evaluate system performance to monitor a planned underground or underwater detonation. The detonation will be non-nuclear in nature but configured to simulate the release of suitable surrogate nuclear testing signatures. All associated signatures will be acceptable to environmental and health regulations and of a nature suitable to challenge IMS monitoring technologies. - Continue radio-xenon gas detection system development and research. Study and evaluate atmospheric and subsurface xenon backgrounds and transport phenomenon. - Continue a study of baseline noble gas detection schemes and select the pathway for future radio-xenon detection options providing enhanced detection and operational capabilities and reliability. This study is paying close attention to timeline and feasibility of implementation alternatives. - Continue infrasound information system enhancements and development of infrasound propagation models to improve detection, identification, and discrimination of sources and signatures of interest. - Continue field experiments to collect data required to constrain and validate models. Models will include fine-scale atmospheric conditions, topography, 3-D winds and effects of non-linear propagation. - Continue to develop a portable/rapid deployable infrasound array and standard sound source for calibrating infrasound stations/ arrays. - Continue on-location infrasound event calibration and metrology research at established engineering and development test centers (EDTC), continue development of EDTCs to support research, testing, and evaluation relevant to station shutdowns, configuration changes, and invasive procedures, and use EDTCs to perform primary evaluations of prototype monitoring arrays and related new technologies and all associated field testing. - Continue R&D on support system to collect and prioritize station operator requirements to inform required design-build-test activities across the monitoring system. Focus areas continue to be improvements to radionuclide detector cooling and functionality, filtration medium and sample head, and electronic controls.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605000BR: *WMD Defeat Capabilities*	PROJECT RF: *Detection and Forensics Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
- Continue US IMS sensor event signal identification technique research and development of the transportable xenon laboratory (TXL) and associated xenon detection system and prepare for international deployment exercises and demonstrations. Operations and maintenance performed in advance of the TXL foreign deployment will establish an operations baseline for this xenon monitoring capability and provide unique opportunities to diagnose and resolve remaining operational and technical concerns and issues, including investigating the "memory effect" recently encountered in these systems as a result of the unintended radio-xenon releases from the Fukushima reactors. Also planned is a continuation of infrasound event clutter and false alarm reduction, and noise mitigation analyses. - Continue to drive improvements in radionuclide detection and measurement, including xenon gas collection/analysis systems research. Evaluate detection limits, and yields. The PTS technical requirements dictate that the US radionuclide laboratory (RL-16) gas system requires additional capability to meet required detection thresholds. Develop test methods to increase xenon gas yields, improve detection efficiencies, and decrease dead volume. To ensure RL-16 is making a high precision measurement, analysis samples will be peer reviewed and calibrated at certified laboratories. - Continue to develop a robust, high-precision method to calibrate nuclear detectors and calibration methods to obtain the absolute calibration of the system's nuclear detector.			
Accomplishments/Planned Programs Subtotals	0.000	0.000	6.906

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• 02/0602718BR: *RF - Detection and Forensics Technologies*	45.570	44.998	40.454		40.454	40.857	41.638	42.560	43.447	Continuing	Continuing
• 03/0603160BR: *RF- Detection and Forensics Technologies*	72.980	76.298	74.556		74.556	75.219	77.505	79.198	79.891	Continuing	Continuing

Remarks

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

The Nuclear Arms Control Technology (NACT) program will transfer from US Army Space Missile Development Command (SMDC) to the Defense Threat Reduction Agency (DTRA) beginning in FY 2014. DTRA will complete the performance metrics for NACT following the completion of a FY 2014-18 NACT RDT&E planning review.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605000BR: *WMD Defeat Capabilities*	PROJECT RF: *Detection and Forensics Technologies*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Radionuclide Analyses Technology	IA	Pacific Northwest National Laboratory:Richland, WA	-	-		-		2.731	Jan 2014	-		2.731	12.249	14.980	14.980
Seismic Waveform Analyses Technology	C/Various	University of Mississippi:Oxford, MS	-	-		-		3.100	Jan 2014	-		3.100	12.400	15.500	15.500
Engineering & Technical Services	Option/ CPFF	TASC, Inc.:Chantilly, VA	-	-		-		0.800	Dec 2013	-		0.800	3.200	4.000	4.000
		Subtotal	0.000	0.000		0.000		6.631		0.000		6.631	27.849	34.480	34.480

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
A&AS Support to Program Office	C/CPFF	*TASC, Inc.:Chantilly, VA	-	-		-		0.200	Dec 2013	-		0.200	0.800	1.000	1.000
Travel	C/Various	Various:Various	-	-		-		0.075	Dec 2013	-		0.075	0.300	0.375	0.375
		Subtotal	0.000	0.000		0.000		0.275		0.000		0.275	1.100	1.375	1.375

Remarks

*Current contract will end in FY2015 and be re-competed.

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		0.000		6.906		0.000		6.906	28.949	35.855	35.855

Remarks

Remarks: The Nuclear Arms Control Technologies (NACT) Program provides Research, Development, Testing, and Evaluation (RDTE) to meet International Monitoring System (IMS) technology requirements in support of implementation, compliance, monitoring, and inspection for existing and emerging nuclear arms control activities. The project addresses WMD monitoring requirements validated by the Office of the Under Secretary of Defense, Acquisition, Technology, and Logistics (OUSD AT&L). This project conforms to the administrations research and development priorities as related to Weapons of Mass Destruction (WMD) arms control and disablement. Technical assessments are made to provide the basis for sound project development , evaluate existing programs and provide the data required to make compliance judgments and

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Defense Threat Reduction Agency			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605000BR: *WMD Defeat Capabilities*	PROJECT RF: *Detection and Forensics Technologies*	

	All Prior Years	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract

support US monitoring policy- and decision-makers and negotiation teams. Technology developments and system improvement projects are conducted to ensure these monitoring capabilities are available when required. NOTE: 1. Current contract will end in FY2015 and be re-competed.

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605000BR: *WMD Defeat Capabilities*	PROJECT RF: *Detection and Forensics Technologies*

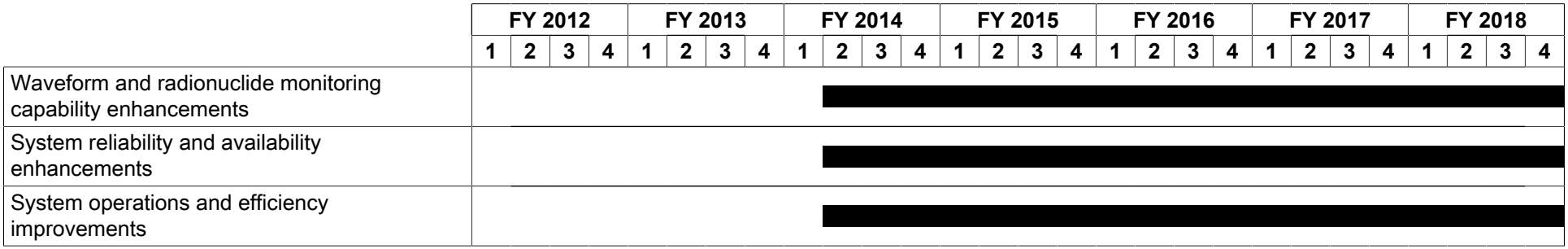

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605000BR: *WMD Defeat Capabilities*	PROJECT RF: *Detection and Forensics Technologies*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Waveform and radionuclide monitoring capability enhancements	2	2014	4	2018
System reliability and availability enhancements	2	2014	4	2018
System operations and efficiency improvements	2	2014	4	2018

Note

The Nuclear Arms Control Technology (NACT) program will transfer from US Army Space Missile Development Command (SMDC) to the Defense Threat Reduction Agency (DTRA) beginning in FY 2014. DTRA will complete the Schedule Details for NACT, following the completion of a FY 2014-FY18 NACT RDT&E planning review.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605000BR: *WMD Defeat Capabilities*	PROJECT RL: *Nuclear & Radiological Effects*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
RL: *Nuclear & Radiological Effects*	7.826	5.750	5.749	5.995	-	5.995	6.077	8.359	8.541	8.694	Continuing	Continuing
Quantity of RDT&E Articles												

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

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

A. Mission Description and Budget Item Justification

This project supports the National Strategy for Countering Biological Threat priority/focus areas 3) Capability Expansion and 4) Leveraging Science. Under Project RL, the Net-Centric Architecture program integrates legacy capabilities and facilitates data sharing through a net-centric framework. It will provides near-real time collaborative analysis capabilities between DoD and key interagency and international partners through a globally accessible net-centric framework known as the Integrated Weapons of Mass Destruction Toolset (IWMDT). The IWMDT migrates Defense Threat Reduction Agency (DTRA) chemical, biological, radiological, nuclear, and high explosive (CBRNE) modeling and simulation codes to provide an integrated suite of Countering 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.

The Net-Centric Architecture program includes three functional areas: 1) IWMDT, 2) IWMDT Codes, and 3) Software Assurance, 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 CBRNE threats. The IWMDT Codes functional area develops analysis and simulation codes, and then integrates the codes into the IWMDT architecture. These activities are unique to this effort across the Department of Defense (DoD). They directly support 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 (USFK) offices, Republic of Korea (ROK) Ministry of Defense, Ministry of Defense Taiwan, as well as providing unique simulation capabilities to the Air Force Distributed Mission Operation Center. The Software Assurance, Certification and Accreditation functional area supports all aspects of DTRA software development and fielding. This sub-project extends research and development to system development and demonstration.

The increase from FY 2013 to FY 2014 is due to increased investment for fielding of IWMDT.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: RL: Nuclear & Radiological Effects	5.750	5.749	5.995
Description: Project RL-Nuclear & Radiological Effects develops and provides a real-time globally accessible net-centric framework which migrates the Defense Threat Reduction Agency (DTRA) chemical, biological, radiological, nuclear, and			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605000BR: *WMD Defeat Capabilities*	PROJECT RL: *Nuclear & Radiological Effects*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
high explosive (CBRNE) modeling and simulation codes to provide an integrated suite of Combating WMD decision support capabilities. ***FY 2012 Accomplishments:*** - Developed and provided a CBRNE web service from IWMDT for integration within the STRATCOM MPAS (Mission Planning and Assessment System) for real-time consequence of execution analysis. - Integrated advanced capabilities within the Net-Centric Architecture with the Global Strike Mission. - Completed development and integration of enhanced capabilities across all five IWMDT major capability areas: 1) Enhanced Consequence Assessment with Hazard Prediction and Assessment Capability (HPAC) SP1 MB; 2) Conducted Target Support Integrated Munitions Effects Assessment (IMEA) 2012; 3) Introduced a new Nuclear Effects satellite assessment model; 4) Transitioned IWMDT-SIM from a standalone code base to a fully integrated capability; and 5) Integrated the Joint Collaborative Analysis Model (JCAM) (net-centric interface to ITEM model) with codes for HPAC, Nuclear Weapons Effects Database System (NWEDS) and Probability of Damage Calculator (PDCALC) within IWMDT. ***FY 2013 Plans:*** - Leverage the 4th Quarter FY 2011 and FY 2012 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). ***FY 2014 Plans:*** - Install IWMDT version 3.4 (server based) at USFK for collaboration between US forces and the ROK forces. - Field IWMDT version 3.4 to U.S. Strategic Command, United Kingdom, Supreme Headquarters Allied Powers Europe (SHAPE), OSD, U.S. Army Nuclear and Combating WMD Agency (USANCA), and DTRA Reachback. - Broad deployment of IWMDT version 3.4 to Department of Homeland Security. - Complete IWMDT version 3.5.			
Accomplishments/Planned Programs Subtotals	5.750	5.749	5.995

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• 25/0602718BR: *WMD Defeat Technologies*	25.343	25.752	35.741		35.741	37.284	37.888	38.297	38.824	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605000BR: *WMD Defeat Capabilities*	PROJECT RL: *Nuclear & Radiological Effects*

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.

Integrate mission-required legacy Defense Threat Reduction Agency CBRNE codes into a net-centric architecture through a process-controlled Verification, Validation, and Accreditation standards-based method necessary to promote the National Strategy for Countering Biological Threats.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 5: *System 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	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 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	-		2.000	May 2014	-		2.000	14.510	36.719	36.719
System Development - NuCS	C/CPFF	Applied Research Associates:Raliegh, NC	4.930	0.000		0.000		-		-		-	0.000	4.930	4.930
System Development - COE	C/CPFF	Titan:Kingstowne, VA	5.533	0.000		0.000		-		-		-	0.000	5.533	5.533
System Development - Component Contracts	C/Various	Various:Various	5.073	0.000		0.000		-		-		-	0.000	5.073	5.073
		Subtotal	32.645	3.100		0.000		2.000		0.000		2.000	14.510	52.255	52.255

Remarks

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

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Configuration Management	C/Various	SAIC:San Diego, CA	0.146	0.060	Jan 2012	0.095	Mar 2013	0.095	May 2012	-		0.095	1.353	1.749	1.749
Software Integration	C/Various	SAIC:San Diego, CA	3.100	0.200	Jan 2012	2.510	Mar 2013	1.510	May 2014	-		1.510	1.100	8.420	8.420
Technical Data	C/Various	SAIC:San Diego, CA	0.050	0.435	Jan 2012	0.050	Mar 2013	0.050	May 2014	-		0.050	0.938	1.523	1.661
Engineering Services	C/Various	SAIC:San Diego, CA	1.464	0.503	Jan 2012	0.908	Mar 2013	0.808	May 2014	-		0.808	0.786	4.469	4.469
Accreditation & Certification	C/Various	SAIC:San Diego, CA	0.146	0.420	Jan 2012	0.509	Mar 2013	0.560	May 2014	-		0.560	0.983	2.618	2.618
		Subtotal	4.906	1.618		4.072		3.023		0.000		3.023	5.160	18.779	18.917

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 5: *System 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	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	C/Various	SAIC:San Diego, CA	1.555	0.350	Jan 2012	0.505	Mar 2013	0.574	May 2014	-		0.574	1.300	4.284	4.284
Operational Test & Evaluation	C/Various	SAIC:San Diego, CA	1.555	0.070	Jan 2012	0.398	Mar 2013	0.398	May 2014	-		0.398	0.925	3.346	3.346
		Subtotal	3.110	0.420		0.903		0.972		0.000		0.972	2.225	7.630	7.630

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	C/Various	SAIC:San Diego, CA	2.296	0.132	Jan 2012	0.234	Mar 2013	-		-		-	2.100	4.762	4.762
Travel	C/Various	SAIC:San Diego, CA	1.070	0.240	Jan 2012	0.270	Mar 2013	-		-		-	1.300	2.880	2.880
Overhead	C/Various	SAIC:San Diego, CA	2.293	0.240	Jan 2012	0.270	Mar 2013	-		-		-	1.600	4.403	4.403
		Subtotal	5.659	0.612		0.774		0.000		0.000		0.000	5.000	12.045	12.045

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	46.320	5.750		5.749		5.995		0.000		5.995	26.895	90.709	90.847

Remarks

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 Cost plus award fee (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 2013 with $35.26M now applied. Likewise, the NuCS program was funded under a competitive Cost plus fixed fee (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. Task Order 00055 (IWMDT) Option 1 of the base contract was issued Nov 2012 for an 18 month period of performance. In May 2014 the current task order will be completed and all follow-on work will be performed under the new IDIQ contract as a new task order.

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605000BR: *WMD Defeat Capabilities*	PROJECT RL: *Nuclear & Radiological Effects*

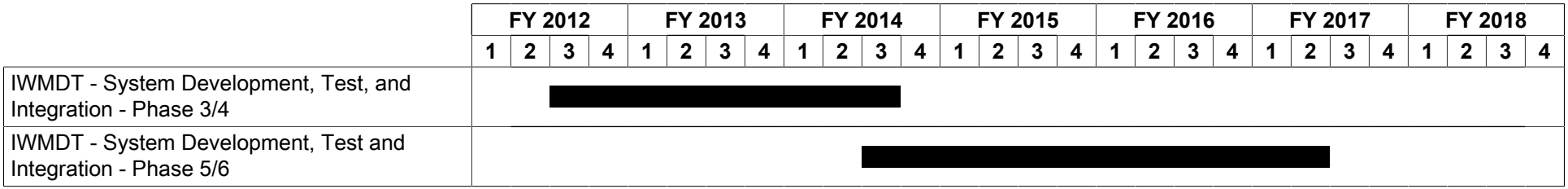

Exhibit R-4A, RDT&E Schedule Details: PB 2014 Defense Threat Reduction Agency		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 5: *System Development & Demonstration (SDD)*	R-1 ITEM NOMENCLATURE PE 0605000BR: *WMD Defeat Capabilities*	PROJECT RL: *Nuclear & Radiological Effects*

Schedule Details

	Start		End	
Events	Quarter	Year	Quarter	Year
IWMDT - System Development, Test, and Integration - Phase 3/4	3	2012	3	2014
IWMDT - System Development, Test and Integration - Phase 5/6	3	2014	2	2017

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Defense Threat Reduction Agency	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605502BR: *Small Business Innovation Research*

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	7.888	6.964	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
RA: *Information Science and Applications*	7.888	6.964	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

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

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

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 Small Business Innovative Research (SBIR) program 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. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	6.964	0.000	0.000	-	0.000
Total Adjustments	6.964	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	6.964	-			

Change Summary Explanation

Funding for the SBIR Program is consolidated in this program element during the year of execution.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605502BR: *Small Business Innovation Research*	PROJECT RA: *Information Science and Applications*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
RA: *Information Science and Applications*	7.888	6.964	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles												

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

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

Note

* 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 2012	FY 2013	FY 2014
Title: RA: Systems Engineering and Innovation	6.964	0.000	0.000
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 2012 Accomplishments:*** - Jan 2012 board resulted in three 10.2 Phase II awards, six 11.2 Phase I awards and four 12.1 Phase I awards. - May 2012 board resulted in three 10.2 Phase II and three 12.1 Phase I awards. - Aug 2012 board resulted in thirteen 12.2 Phase I awards.			
Accomplishments/Planned Programs Subtotals	6.964	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Threat Reduction Agency			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605502BR: *Small Business Innovation Research*	PROJECT RA: *Information Science and Applications*	

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• 23/0602718BR: *RA - Information Science and Applications*	42.279	33.396	31.263		31.263	32.901	31.870	33.852	34.505	Continuing	Continuing
• 28/0603160BR: *RA - Information Science and Applications*	13.354	7.455	2.431		2.431	1.934	2.415	2.351	2.381	Continuing	Continuing

Remarks

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

Approximately 16 Phase I awards supporting innovative technology in FY12.

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