Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Defense Threat Reduction Agency										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*				R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	217.044	221.185	212.742	0.000	212.742	206.170	202.610	203.558	207.252	Continuing	Continuing
RA: *Systems Engineering and Innovation*	55.281	55.857	53.464	0.000	53.464	53.231	52.905	51.754	53.164	Continuing	Continuing
RF: *Detection Technology*	38.766	47.008	52.649	0.000	52.649	48.406	45.660	46.345	47.046	Continuing	Continuing
RG: *Advanced Energetics & Counter WMD Weapons*	21.265	32.381	29.139	0.000	29.139	27.522	26.483	26.883	27.282	Continuing	Continuing
RI: *Nuclear Survivability*	29.359	18.660	17.902	0.000	17.902	17.788	17.695	17.962	18.250	Continuing	Continuing
RL: *Nuclear & Radiological Effects*	15.041	19.704	16.776	0.000	16.776	17.323	17.067	17.336	17.612	Continuing	Continuing
RM: *WMD Battle Management*	25.210	14.440	10.899	0.000	10.899	10.303	11.435	11.727	12.107	Continuing	Continuing
RR: *Test Infrastructure*	17.411	19.651	21.528	0.000	21.528	21.437	21.354	21.705	22.101	Continuing	Continuing
RU: **Fundamental Research for Combating WMD*	14.711	13.484	10.385	0.000	10.385	10.160	10.011	9.846	9.690	Continuing	Continuing

Note

*Project title change from Basic Research for WMD Knowledge Gaps starting in FY 2010

A. Mission Description and Budget Item Justification

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

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Defense Threat Reduction Agency	DATE: February 2010
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 provides the research and development both for systems engineering and analysis support across all other projects and innovative counterproliferation research and technical reachback support.

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

Project RG develops advanced technologies and weapon concepts and validates their applicability as counter Weapons of Mass Destruction (WMD) weapon systems.

Project RI provides the capability for DoD nuclear forces and their associated control and support systems and facilities in wartime to avoid, repel, or withstand attack or other hostile action, to the extent that essential functions can continue or be resumed after the onset of hostile action. Funding in this project reflects a rebalancing of efforts within the program element to augment the Radiation Hardened Microelectronics Program and enabling technologies to enhance Nuclear Weapons Effects (NWE) experimentation capability.

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

Project RM provides (1) full scale testing of counter WMD weapon effects, sensor performance, and weapon delivery optimization, (2) weapon effects modeling, and (3) the Defense Threat Reduction Agency Experimentation Lab.

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

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

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Defense Threat Reduction Agency	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	**R-1 ITEM NOMENCLATURE** PE 0602718BR: *WMD Defeat Technologies*

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	213.606	219.130	0.000	0.000	0.000
Current President's Budget	217.044	221.185	212.742	0.000	212.742
Total Adjustments	3.438	2.055	212.742	0.000	212.742
• Congressional General Reductions		-1.065			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		3.120			
• Congressional Directed Transfers		0.000			
• Reprogrammings	8.783	0.000			
• SBIR/STTR Transfer	-3.845	0.000			
• Realignment / Internal Functional Transfer	-1.500	0.000	-4.233	0.000	-4.233
• Inflation Reduction	0.000	0.000	-1.116	0.000	-1.116
• Other Program Adjustment	0.000	0.000	218.091	0.000	218.091

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: RA: *Systems Engineering and Innovation*		
Congressional Add: *Comprehensive National Incident Management System*	2.000	0.000
Congressional Add Subtotals for Project: RA	2.000	0.000
Project: RM: *WMD Battle Management*		
Congressional Add: *National Center for Blast Mitigation & Protection*	0.000	1.200
Congressional Add Subtotals for Project: RM	0.000	1.200
Project: RU: **Fundamental Research for Combating WMD*		
Congressional Add: *Center for Nonproliferation Studies, Monterey Institute for International Affairs*	1.200	0.000
Congressional Add: *University Strategic Partnership*	0.000	1.920

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Defense Threat Reduction Agency	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	**R-1 ITEM NOMENCLATURE** PE 0602718BR: *WMD Defeat Technologies*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Congressional Add Subtotals for Project: RU	1.200	1.920
Congressional Add Totals for all Projects	3.200	3.120

Change Summary Explanation

The FY 2009 increase from the previous budget submission reflects the net effect of two reprogramming actions. The FY09-04 PA reprogramming action to accelerate ongoing DTRA research in active interrogation technologies and to accelerate ongoing efforts to identify and develop the technologies necessary to provide an advanced nuclear weapon neutralization capability and the FY 09-26 PA reprogramming action in support of higher priority Department needs.

The DoD did not estimate FY 2011 costs when the FY 2010 President's Budget was prepared. The FY2011 budget reflects an increase for Near Real Time Reachback Support (NRTRS) Demonstration to investigate remote warfighter decision making in WMD Operations using high performance computational tools, visualization, user input and network accessible DTRA Subject Matter Expertise (SME). The demonstration will provide a platform within the Commander's decision cycle time in support of courses of action and tactical decisions related to WMD operations.

The FY 2011 increase is offset by the internal functional transfer of advisory and assistance services from DTRA's Research, Development, Test & Evaluation, Defense-Wide account to the Operation and Maintenance, Defense-Wide account. This transfer reflects the internal functional realignment of advisory and assistance services and other business-related costs that were formerly captured under DTRA's Research, Development, Test & Evaluation, Defense-Wide account to the Operation and Maintenance, Defense-Wide account. As part of DTRA's continued effort to integrate and refine its functions and activities, this transfer more appropriately aligns this funding to the proper appropriation. At the Agency level, this functional transfer between appropriations will have a zero sum impact to these budget line items. An additional decrease of $1.116 million is associated with changes in the inflation rates and therefore is a price change, not a program change.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Defense Threat Reduction Agency			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RA: *Systems Engineering and Innovation*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
RA: *Systems Engineering and Innovation*	55.281	55.857	53.464	0.000	53.464	53.231	52.905	51.754	53.164	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Systems Engineering and Innovation project provides (1) systems engineering and analysis support across all other Projects, (2) innovative counterproliferation research, and (3) technical advisory reachback support on Weapons of Mass Destruction (WMD) effects and consequences. The systems engineering effort provides research and development with requirements, technology, architecture analyses and proof-of-principle capability necessary for making decisions on strategic planning, research and development investments, new initiatives, cooperation, ventures with new customers, and accomplishment of high-level, short notice special projects. It also conducts the development, validation and fielding of the Arms Control Information System 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 research and development programs. The technical reachback effort provides 24 hours, 7 days per week information and analyses on potential impacts of a WMD event to Warfighters and First Responders in consult with DTRA's Combating WMD Research and Development subject matter experts. This project also provides technical support to the DTRA London Office.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
RA: Systems Engineering and Innovation	53.281	55.857	53.464	0.000	53.464
Project RA provides the research and development both for systems engineering and analysis support across all other projects and innovative counterproliferation research and technical reachback support.					
FY 2009 Accomplishments: - Continued to provide support for requirements and gap analysis to enable program managers to identify, conduct, and deliver innovative Science and Technology to combat WMD. As a result of this support, DTRA deployed new constructive simulation trade space environment and supported requirement studies for efforts to prevent loose nukes experimentation campaign, efforts to control					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Defense Threat Reduction Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RA: *Systems Engineering and Innovation*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
chemical and biological weapons, electromagnetic pulse (EMP) Vulnerability, and the Global Nuclear Defense System. - Continued to conduct studies and develop systems architectures to enable research and development efforts to meet capability gaps by translating Agency goals and Concept of Operations into actionable products. As a result of these efforts, DTRA provided analysis support to U.S. Pacific Command, U.S. Joint Forces Command, OSD Policy, and the Quadrennial Defense Review. - Initiated five new systems engineering based analyses for distributed decision support and analysis, battle management, situational awareness, medical manufacturing readiness levels, nuclear enterprise, and 21st century technology needs. Numerous projects completed within the overall categories listed above and project completion will continue through FY 2010. - Completed and identifying transition paths for innovative projects in threat anticipation, explosives detection, bio-agent sampling for real-time detection, and electronic device detection. - Solicited new innovative research projects. *FY 2010 Plans:* - Initial operational capability for systems engineering decision support tools. Direct support to Defense Threat Reduction Agency (DTRA) programs and projects for analyzing and determining key performance and key technical parameters to support investment strategies. - 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. - Initial 21st century nuclear threat assessment in support of the Nuclear Posture Review. - Initial Battle Management Architecture and Manufacturing Readiness Level Assessment studies vis a vis the DTRA mission and active projects. - Initial Nuclear Enterprise architecture analysis. - Initiate three new systems engineering-based special projects.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Defense Threat Reduction Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RA: *Systems Engineering and Innovation*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
- Receive transition, management and out year funding of decision-support tools from Project RU – Fundamental Research for Combating WMD. - Complete and transition innovative projects in portable neutron sources for nuclear detection and radio systems for use in jamming environments. - Complete and transition micro miniature chemical detector for unattended sensors. - Solicit new innovative research projects. *FY 2011 Base Plans:* - Final operational capability for systems engineering decision support tools. Direct support to DTRA programs and projects for analyzing and determining key performance and key technical parameters to support investment strategies. - Continue requirements and gap analyses to enable research and development efforts to meet combating WMD capability gaps. Support program and project managers by translating Agency goals and Concept of Operations into actionable products. - Complete 21st century nuclear threat assessment. - Complete the Distributed Decision Support and Analysis architecture and Manufacturing Readiness Level Assessment studies vis a vis the DTRA Mission and active projects. - Complete Nuclear Enterprise architecture analysis. - Initiate three new systems-engineering based special projects. - Solicit new innovative research projects. - Complete reconstructing the current networks to produce the DTRA Integration Technical Experimentation Center (DITEC) as an environment to test and assess new technologies and configuration changes. - Develop and integrate secure core infrastructure enhancements that remediate vulnerability issues. - Engineer and deploy full virtual infrastructure modeling and anomaly detection capability.					
Accomplishments/Planned Programs Subtotals	53.281	55.857	53.464	0.000	53.464

Exhibit R-2A, RDT&E Project Justification: PB 2011 Defense Threat Reduction Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RA: *Systems Engineering and Innovation*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Comprehensive National Incident Management System *FY 2009 Accomplishments:* - Continued baseline research and development on the underlying technology upon which each Comprehensive National Incident Management System (CNIMS) capability is based. Demonstrated capabilities for large-scale national and regional pandemic influenza studies. Investigated methodologies necessary to provide complex situational representation and Course of Action (CoA) analyses including public health interventions. - Employing the core research and development technologies, CNIMS provided working level, demonstrative studies supporting the Department of Health & Human Services Assistant Secretary for Preparedness and Response (HHS/ASPR) Fusion Cell and USNORTHCOM (Surgeon General) in support of recent H1NI pandemic.	2.000	0.000
Congressional Adds Subtotals	2.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 26/0603160BR: *Proliferation Prevention and Defeat*	17.447	7.314	7.270		7.270	7.342	7.346	5.937	5.859	Continuing	Continuing

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

Number of customer requests for data analysis compared to historical level.

Number of changes to investments based on systems engineering analyses.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Defense Threat Reduction Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	**R-1 ITEM NOMENCLATURE** PE 0602718BR: *WMD Defeat Technologies*	**PROJECT** RA: *Systems Engineering and Innovation*

Number of exercise and operations supported.

Number of Defense Acquisition Workforce Improvement Act certified systems engineers.

New capabilities delivered and transitioned to operational capabilities.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Defense Threat Reduction Agency			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RF: *Detection Technology*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
RF: *Detection Technology*	38.766	47.008	52.649	0.000	52.649	48.406	45.660	46.345	47.046	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Detection Technology project develops technologies, systems and procedures to detect, identify, track, tag, locate, monitor and interdict strategic and improvised nuclear and radiological weapons, components, or materials in support of Department of Defense requirements for combating terrorism, counterproliferation and nonproliferation, homeland defense, and international initiatives and agreements. This project researches, develops, demonstrates, and transitions advanced technologies to improve: operational capability to detect and identify nuclear and radiological weapons; post-detonation National Technical Nuclear Forensics capabilities; and to support the attribution process. Efforts under this project also support international peacekeeping and nonproliferation objectives, on-site and aerial inspections and monitoring, on-site sampling and sample transport, and on- and off-site analysis to meet forensic, verification, monitoring and confidence-building requirements.

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

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
RF: Detection Technology	38.766	47.008	52.649	0.000	52.649
Project RF develops technologies, systems and procedures to detect, identify, track, tag, locate, monitor and interdict strategic and improvised nuclear and radiological weapons, components, or materials in support of Department of Defense (DoD) requirements for combating terrorism, counterproliferation and nonproliferation, homeland defense, and international initiatives and agreements.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Defense Threat Reduction Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RF: *Detection Technology*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: - Continued program for developing integrated detection systems exploiting advances in solid state nuclear detectors, processing electronics, analysis software, identification technology, and integrated nuclear/biological/chemical sensor technology. - Initiated a full scale test and evaluation campaign for Compton imagers and a second generation effort to develop more integrated and compact imagers with enhanced capability. These second generation imagers will be more optimized to operate with an active excitation source directed at the target item. - Continued program to develop systems that enable consequence management, to include the protection of forces. - Performed field demonstrations of new detector technologies for handheld detectors, distributed sensors, and vehicle-mountable detector systems, to improve the ability of fielded forces to detect, locate, and identify nuclear materials in the battle space. Continued to improve performance of new detector materials, imaging and spectroscopy systems, and signals analysis methods through rigorous field testing. - Continued to develop 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. - Developed technical information to support programmatic decisions regarding next-generation ground sampling capabilities, marine sampling capability, and next-generation Unmanned Aerial Systems for air and ground sampling. Support potential development/conduct of a Nuclear Forensics Joint Concept Technology Demonstration (JCTD). - Continued to provide enhanced technical support and analysis to the Nuclear Weapons Council and Nuclear Weapons Council Standing and Safety Committee and other high-level committees and senior decision makers to transform the nuclear stockpile and infrastructure. - Commenced an effort to develop a portable stand off Bremsstrauhlung active interrogation system capable of being mounted on an aerial platform that can be seamlessly integrated into a bi-static or					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Defense Threat Reduction Agency		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
mono-static detector network to provide battle space awareness for hidden and shielded nuclear material for the theater commander. - Continued to investigate active interrogation as a safe method of standoff detection in situations where dosage to people and cargo are below the allowable limits. - Continued cooperation and acceptance of DTRA developed detection technologies for operational development. - Continued cooperation and acceptance of DTRA developed post nuclear event collection technologies for operational development. - Continued transitioning multiple near term technologies to generate prototypes and design packages to assist ground forces. - Exercised developmental collection capabilities with table top experiment, command post exercise, and field test experiment. - Continued enhancement/maintenance of the Sentry/Sniper databases. Integrated chemical and biological weapon information and a decision matrix into a comprehensive WMD database. - Continued robotic ground sample collection improvements. - Continued development techniques, tactics, and procedures of a nuclear forensics ground sample collection team. - Conducted modeling, simulation and experiments to evaluate the feasibility of using muons and protons to stimulate fissions in nuclear materials from standoff ranges. *FY 2010 Plans:* - Complete design for a baseline Department of Defense large standoff proton active interrogation system to provide a reference standard for evaluating progress and capabilities in standoff detection and warning of hidden and shielded nuclear material. - Continue the extensive effort begun in the standoff Bremsstrauhlung active interrogation system Joint Capability Technology Demonstration to develop a standoff active interrogation system to detect hidden and shielded nuclear material.					

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
- Perform field demonstrations of new detector technologies for handheld detectors, distributed sensors, and vehicle mountable detector systems, to improve the ability of fielded forces to detect, locate, and identify nuclear materials in the battle space. Continue to improve performance of new detector materials, imaging and spectroscopy systems, and signals analysis methods through rigorous field testing. - Continue to develop and field (prototype) upgraded technical capabilities for prompt and debris sample collection, sample analysis, and integration of design modeling and forensic data to support development of technical conclusions. - Investigate the use of muon and proton beams for standoff stimulation of fission in nuclear materials. Conduct experiments to validate the feasibility of the approach. *FY 2011 Base Plans:* - Complete development of a fielded standoff active interrogation system for standoff detection and warning of hidden and shielded nuclear material. - Continue development of a baseline DoD large standoff monoenergetic or wakefield accelerator active interrogation system to provide a new reference standard for evaluating progress and capabilities in standoff detection and warning of hidden and shielded nuclear material. - Perform field demonstrations of new detector technologies for handheld detectors, distributed sensors, and vehicle mountable detector systems, to improve the ability of fielded forces to detect, locate, and identify nuclear materials in the battle space. Continue to improve performance of new detector materials, imaging and spectroscopy systems, and signals analysis methods through rigorous field testing. - Continue to develop and field (prototype) upgraded technical capabilities for prompt and debris sample collection, sample analysis, and integration of design modeling and forensic data to support development of technical conclusions. - Continue execution of the National Technical Nuclear Forensics Joint Concept Technology Demonstration (JCTD).					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Defense Threat Reduction Agency		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
- Investigate the use of muon and proton beams for standoff stimulation of fission in nuclear materials. Conduct experiments to validate the feasibility of the approach. - Investigate alternative methods to stimulate fissions in nuclear materials from standoff ranges, including the use of high-energy lasers to generate beams of mono-energetic x-rays. - Develop methods to rapidly determine nuclear weapon yields post-event, by investigating alternative prompt nuclear weapons effects on the environment. - Develop improved correlation tools, signature databases, and modeling of device/production design space to increase confidence, decrease uncertainties and timelines, to better support production of consensus technical forensics results. - Transition alternative neutron detection materials and systems as an alternative to the use of helium-3.					
Accomplishments/Planned Programs Subtotals	38.766	47.008	52.649	0.000	52.649

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 26/0603160BR: *Proliferation Prevention and Defeat*	60.622	70.627	90.688		90.688	89.700	89.898	90.993	91.374	Continuing	Continuing

D. Acquisition Strategy

N/A

E. Performance Metrics

Successful completion of laboratory testing of the helium dimer Compton imager.

Successful completion of the individual digital dosimeter project.

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

Exhibit R-2A, RDT&E Project Justification: PB 2011 Defense Threat Reduction Agency		DATE: February 2010
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Successful acceptance and operational development of transitional detection technologies.

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

Deliver 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.

Improve forensics tool capabilities.

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

Sustain readiness via lab exercises and Quality Control and Quality Assurance processes. Conduct successful separate collection exercises specific to DoD NTNF mission.

Support completion of the Department of Defense (DoD) Directive promulgating DoD support to the National Technical Forensics Program. Draft strategic Concept of Operations for the Commander, U.S. Strategic Command Center for Combating Weapons of Mass Destruction that addresses post-detonation NTNF operational response.

Continue to maintain/enhance the Sentry/Sniper databases and assist in populating the Sniper Chemical and Biological database.

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

Exhibit R-2A, RDT&E Project Justification: PB 2011 Defense Threat Reduction Agency			DATE: February 2010
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COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
RG: *Advanced Energetics & Counter WMD Weapons*	21.265	32.381	29.139	0.000	29.139	27.522	26.483	26.883	27.282	Continuing	Continuing

A. Mission Description and Budget Item Justification

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

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
RG: Advanced Energetics & Counter WMD Weapons	21.265	32.381	29.139	0.000	29.139
Project RG develops advanced technologies and weapon concepts and validates their applicability as counter Weapons of Mass Destruction (WMD) weapon systems. *FY 2009 Accomplishments:* - Conducted two flight tests of the Massive Ordnance Penetrator (MOP), successfully demonstrating safe release from the B-52 aircraft, warhead and explosive survivability upon impact, and fuze functionality. - Continued development of technologies for counterforce agent defeat, advanced payloads, counter WMD payload delivery systems, and advanced counter WMD weapons.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Defense Threat Reduction Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RG: *Advanced Energetics & Counter WMD Weapons*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
- Continued to develop non-kinetic based counter-WMD process modeling capability and integrate it into High Level Architecture backbone. - Conducted survey, analysis and down-select of non-kinetic test beds, models and capabilities. - Completed sub-scale testing of brass board Sandia National Lab 3 axis digital data booster-cup recorder. - Completed Counter WMD Deny Payload component test. - Continued scale tunnel lethality tests, completed 14 tests on six promising high-energy fills. - Continued Integrated Precision Ordnance Delivery System refinement of concepts, technology assessments. - Initiated Singlet Oxygen Neutralization Experimentation. *FY 2010 Plans:* - Complete Scaled High Speed Penetration Tests vs. Limestone Geological Targets. - Initiate High Speed Penetrator case/fill material development and characterization. - Support Hard Target Void Sensing Fuze full-scale Joint Capability Technology Demonstration survivability testing. - Complete fuze booster cup survivable recorder development. - Conduct Joint Direct Attack Munition Battle Damage Information system full-scale technology development. - Begin integration of kinetic and non-kinetic capabilities into single payload for counter WMD. - Begin testing of novel high explosive materials developed under disruptive payloads technology. - Conduct small scale testing and modeling of non-kinetic payload capability. *FY 2011 Base Plans:* - Conduct Scaled High Speed Penetrator Tests versus High Strength Concrete Targets to further characterize breakthrough penetrator technologies. - Incorporate improved material models into penetration codes for geological and concrete targets.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Defense Threat Reduction Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RG: *Advanced Energetics & Counter WMD Weapons*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
- Complete development of fuze/fuze module sub-scale survivability test protocol to further characterize breakthrough penetrator technologies. - Continue maturing advanced non-energetic countering WMD payload components. - Initiate advanced testing of countering WMD sub-munitions. - Explore transformational energetic fills by performing Sub-scale characterization of next generation survivable penetrator energetic material fill. - Demonstrate robust survivable 3” fuze instrumentation weapon data recorder package in sub-scale tests. - Continue Thermite Multi-effort Basic Research, trade studies, tests and Demos. - Initiate Singlet Oxygen Compatibility studies/tests. - Explore transformational energetic fills by performing Sub-scale characterization of next generation survivable penetrator energetic material fill - Demonstrate robust survivable 3” fuze instrumentation weapon data recorder package in sub-scale tests - Continue Thermite Multi-effort Basic Research, trade studies, tests and Demos. - Initiate Singlet Oxygen Compatibility studies/tests					
Accomplishments/Planned Programs Subtotals	21.265	32.381	29.139	0.000	29.139

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 26/0603160BR: *Proliferation Prevention and Defeat*	26.412	21.396	17.386		17.386	18.486	25.508	26.962	26.413	Continuing	Continuing

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2011 Defense Threat Reduction Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RG: *Advanced Energetics & Counter WMD Weapons*

E. Performance Metrics

Number of large scale tests completed.

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

Exhibit R-2A, RDT&E Project Justification: PB 2011 Defense Threat Reduction Agency			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RI: *Nuclear Survivability*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
RI: *Nuclear Survivability*	29.359	18.660	17.902	0.000	17.902	17.788	17.695	17.962	18.250	Continuing	Continuing

A. Mission Description and Budget Item Justification

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

The Simulation Technology area is operating under a new business model for the West Coast Facility, San Leandro, CA, that makes it a 100% customer funded facility. These 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 and the international Weapon Effects Steering Committee (WESC) that was called the NWE Users' Group. The WESC establishes standards for nuclear weapons effects simulation codes and models as defined and prioritized by the nuclear community, and serves as a forum for sharing information on nuclear technologies, gaps and plans.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
RI: Nuclear Survivability	29.359	18.660	17.902	0.000	17.902
Project RI provides the capability for DoD nuclear forces and their associated control and support systems and facilities in wartime to avoid, repel, or withstand attack or other hostile action, to the extent that essential functions can continue or be resumed after the onset of hostile action. Funding in this project reflects a rebalancing of efforts within the program element to augment the Radiation Hardened					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Defense Threat Reduction Agency		DATE: February 2010
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 Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Microelectronics Program and enabling technologies to enhance Nuclear Weapons Effects (NWE) experimentation capability. *FY 2009 Accomplishments:* - Characterized the warm x-ray sources at the West Coast Facility (WCF) using a time-resolved camera from the United Kingdom's Atomic Weapons Establishment. - Conducted warm x-ray source experiments on Saturn and matched the dose-rates produced at the WCF. - Initiated research & development for enabling technology to improve small experimentation capability for high fidelity gamma effects and model validation. - Developed laser-driven cold x-ray source designs and experiment plans to investigate the potential Nuclear Weapons Effects (NWE) capabilities of the National Ignition Facility (NIF) in collaboration with Lawrence Livermore National Laboratory and the Missile Defense Agency. - Researched and published beta-particle radiation dose probabilistic uncertainty analysis. *FY 2010 Plans:* - Demonstrate final Radiation Hardened by Design 90 nanometer reconfigurable Field-Programmable Gate Array. - Complete disposition of excess government-owned WCF equipment. - Complete a joint x-ray source and effects demonstration experiment at the NIF with Sandia National Laboratory, Lawrence Livermore National Laboratory, United Kingdom Atomic Weapons Establishment, and the Missile Defense Agency. - Develop new, enabling technologies for improved NWE experimentation capabilities for x-rays, gamma rays, and neutrons. - Development of modeling for prompt radiation environment in urban settings, noting in particular canyon effects and shielding by structures.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Defense Threat Reduction Agency		DATE: February 2010
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 Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: - Demonstrate initial 45nm radiation hardened prototype circuits to develop radiation hardened by design methods. - Complete prototype demonstration of a high-temporal fidelity gamma small experimentation capability. - Continue investigation of NIF as a potential NWE experimentation capability. - Complete Warm X-ray source experiments on Saturn. - Improve operational models of secondary and tertiary blast effects.					
Accomplishments/Planned Programs Subtotals	29.359	18.660	17.902	0.000	17.902

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 25/0603160BR: *Proliferation Prevention and Defeat*	9.749	13.935	14.052		14.052	13.962	13.878	14.062	14.252	Continuing	Continuing

D. Acquisition Strategy

N/A

E. Performance Metrics

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

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

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

Exhibit R-2A, RDT&E Project Justification: PB 2011 Defense Threat Reduction Agency			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RL: *Nuclear & Radiological Effects*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
RL: *Nuclear & Radiological Effects*	15.041	19.704	16.776	0.000	16.776	17.323	17.067	17.336	17.612	Continuing	Continuing

A. Mission Description and Budget Item Justification

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

Changes from FY 2009 to 2010 reflect rebalancing of efforts in the areas of advanced modeling systems and survivability technology are rebalanced to increase corporate capabilities in systems engineering and analysis support across all other projects within the research and development portfolio. The impacts delay full 3-D modeling and simulation efforts for electromagnetic pulse (EMP) response and consequence management predictions, to include second and third order effects.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
RL: Nuclear & Radiological Effects	15.041	19.704	16.776	0.000	16.776
Project RL develops nuclear and radiological assessment modeling tools to support military operational planning, weapon effects predictions, and strategic system design decisions. *FY 2009 Accomplishments:* - Continued to provide nuclear electromagnetic hardening and survivability support to the Joint Staff, Defense Information Systems Agency, and Missile Defense Agency. Focus areas anticipated include the Nuclear Command and Control System and Global Information Grid (GIG). - Completed development and integration of the electromagnetic pulse (EMP) prediction model and low equivalent dose radiation cancer algorithms.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Defense Threat Reduction Agency		DATE: February 2010
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 Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
- Assessed EMP effects on power grid components to determine impacts to the Department of Defense's GIG. - Continued technical revisions to Redbook Volumes I-IV, Effects Manual-1, and further publishing of Joint Radiation Effects documentation. - Continued development of models allowing the predictions and analysis of nuclear survivability for military communication satellites. - Began Air Conductivity Experimentation and Advanced High Altitude Nuclear Environment Engineering Code Development efforts. *FY 2010 Plans:* - Continue to provide nuclear electromagnetic hardening and survivability support to the Joint Staff, Defense Information Systems Agency, and Missile Defense Agency. Focus areas anticipated include the Nuclear Command and Control System and Global Information Grid. - Continue development of models allowing the predictions and analysis of nuclear survivability for ballistic missile defense system. - Provide small scale testing in support of modeling and simulation (M&S) validation. - Continued EM-1 development; integrate activities to include validation and verification, peer review, and coordination with experimentation efforts; continue publication of Joint Radiation Effects documentation. - Validate code for system response to X-Rays; validate and integrate M&S capability to understand thermo-structural response to X-Rays; validate and integrate M&S capability for satellite design. *FY 2011 Base Plans:* - Conduct tests of vulnerabilities of reprocessing facilities. - Begin EMP E1 physics-based code. - Provide collateral effects M&S for enrichment facilities. - Continue EM-1 development; continue publication of Joint Radiation Effects documentation.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Defense Threat Reduction Agency		DATE: February 2010
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 Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
- Continue development of models allowing the predictions and analysis of nuclear survivability for Nuclear Command and Control System. - Continue to validate code for system response to X-Rays; validate and integrate Modeling and Simulation (M&S) capability to understand thermo-structural response to X-Rays; validate and integrate M&S capability for satellite design.					
Accomplishments/Planned Programs Subtotals	15.041	19.704	16.776	0.000	16.776

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 115/0605000BR: *WMD Defeat Capabilities*	15.499	8.689	7.307		7.307	6.660	5.432	5.508	5.587	Continuing	Continuing

D. Acquisition Strategy

N/A

E. Performance Metrics

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

Develop and integrate baseline database of 80% of current foreign nuclear reactors and enrichment facilities.

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.

Transition required capabilities to the Chem-Bio Defense Program's JEM and Joint Operational Effects Federation, the Missile Defense Agency, U.S. Space Command, and U.S. Strategic Command's planning suite.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Defense Threat Reduction Agency			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RM: *WMD Battle Management*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
RM: *WMD Battle Management*	25.210	14.440	10.899	0.000	10.899	10.303	11.435	11.727	12.107	Continuing	Continuing

A. Mission Description and Budget Item Justification

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

This project provides combatant commanders the prediction capability and the attack options to engage Hard & Deeply Buried Targets (HDBTs) as the proliferation and hardness of this class target increases. It develops new and enhanced capabilities at DTRA's WMD National Test Beds for integrating WMD defeat testing Department of Defense (DoD) wide and supports tests and demonstrations of new capabilities for the countering WMD offensive operations mission area. It develops, tests, and demonstrates innovative and optimized HDBT Defeat weapon delivery methods, leading to the Services implementation of optimized conventional weapon Tactics, Techniques and Procedures into warfighter operations. The project conducts weapon effects phenomenology tests, analyzes data, conducts high performance computer simulations, and creates/modifies software to more accurately model cratering effects, fragmentation (both primary & secondary), internal air blast, equipment/container damage, structural response, and penetration. These efforts will lead to advanced modeling capability in the countering WMD tools, Integrated Munitions Effects Assessment (weaponeering) and Vulnerability Assessment and Protection Option (force/structure protection).

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

Changes from FY 2009 to FY 2010 reflect a realignment of funds that were realigned from this project to fund the 6.1 Basic Research program at the DoD investment goal of 10-12% of Total Obligation Authority. Efforts in this project were rebalanced to increase corporate capabilities within Project RA - Systems Engineering and Innovation. Subprograms impacted are Weapons Effects Planning Tools, WMD Technology, and Counter WMD Weapons Effects modeling\testing. Planned tests supporting blast mitigation projects and recapitalization of test beds are delayed. Risk reduction testing is scaled back and technology demonstrations are reduced.

B. Accomplishments/Planned Program ($ in Millions)

Exhibit R-2A, RDT&E Project Justification: PB 2011 Defense Threat Reduction Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RM: *WMD Battle Management*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
RM: WMD Battle Management	25.210	13.240	10.899	0.000	10.899

Project RM provides (1) full scale testing of counter WMD weapon effects, sensor performance, and weapon delivery optimization, (2) weapon effects modeling, and (3) the Defense Threat Reduction Agency Experimentation Lab.

FY 2009 Accomplishments:

- Conducted 70 material characterization tests on Ultra-High Performance Concrete (UHPC) which are used to develop high-fidelity computational models.
- Conducted 9 small-scale penetration tests on UHPC with oblique angles of impact and multi-layers of UHPC and conventional concrete.
- Conducted 3 contact and embedded detonation tests on UHPC.
- Completed testing and model development for multi-hit attacks to hardened bunker roof slabs.
- Conducted equipment fragility testing in 20 separate field events, for components of biological weapons facilities.
- Conducted Internal Detonation (quasi static and dynamic pressure) testing and modify model.
- Conducted testing and modeling improvements to the Weapons of Mass Destruction (WMD) Agent Release Model allowing agent release from user-specified fragments.
- Completed 9 tests of contact and near-contact explosive charges against columns to improve analytical models (partnered with the Technical Support Working Group and Navy Facilities Engineering Service Center).
- Conducted modifications to predictive models for two blast door types in order to capture more complex failure modes.
- Conducted 6 tests examining blast propagation through failing walls from internal detonations to support model development.
- Continued research and development supporting countering WMD weapons effect modeling & testing and the Defense Threat Reduction Agency (DTRA) Experimentation Lab. Tunnel blast experiments, using a 1/3 scaled complex tunnel test facility, to validate tunnel blast models was not completed..

Exhibit R-2A, RDT&E Project Justification: PB 2011 Defense Threat Reduction Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RM: *WMD Battle Management*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
- Implemented multiple security levels across DTRA information domains to increase effectiveness of the DTRA Experimentation Lab. - Continued to provide leading technological integration capabilities to the Combating WMD (CWMD) mission through utilization of the DTRA Experimentation Lab (DEL). - Continued to support demonstrations and experimentation events for the CWMD Community of Interest to include participation in Noble Resolve, Coalition Warrior Interoperability Demonstration, Urban Resolve, and DTRA loose nukes experimentation campaigns. Integrated Technology Demonstration (ITD-1) Test/Demonstration facility design & construction not started. - Continued facilitation of the internal Continuity of Operations Table Top Experiment through the DEL. *FY 2010 Plans:* - Conduct Ultra High Performance Concrete penetration tests and material analysis. Continue modeling. - Complete model for multi-hit attacks to hardened bunker roof slabs. Finalize or re-direct multi-hit research efforts. - Deliver 15 additional validated equipment fragility models. - Complete Quasi Static Pressure model. - Conduct testing and modeling improvements to the Weapons of Mass Destruction (WMD) Agent Release Model with emphasis on dry agents. - Complete column satchel charge model. - Conduct blast door model testing and model modifications. - Complete progressive collapse model. - Continue to provide leading technological integration capabilities to the combating WMD mission through utilization of the Defense Threat Reduction Agency (DTRA) Experimentation Lab (DEL). - Continue to support demonstrations and experimentation events for the Countering WMD Continuity of Interest to include participation in Noble Resolve, Coalition Warrior Interoperability Demonstration, Urban Resolve, and Campaign X experimentation campaigns. - Continue facilitation of the internal Continuity of Operations Table Top Experiment through the DEL.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Defense Threat Reduction Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RM: *WMD Battle Management*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: - Conduct Ultra High Performance Concrete penetration tests and material analysis. Continue modeling and finalize evaluation of current models. - Deliver 15 additional validated equipment fragility models. - Complete validation and verification on Internal Detonation (quasi-static and dynamic pressure) model. - Conduct testing and modeling improvements to the WMD Agent Release Model. Complete validation and verification of dry agent model. - Conduct blast door model testing and model modifications. - Complete progressive collapse testing and model development for concrete frame structures. - Continue to provide leading technological integration capabilities to the combating WMD mission through utilization of the DEL. - Continue to support demonstrations and experimentation events for the Countering WMD Community of Interest (COI) to include participation in Noble Resolve, Coalition Warrior Interoperability Demonstration, Urban Resolve, and efforts to prevent loose nukes experimentation campaigns. - Continue facilitation of the internal Continuity of Operations Table Top Experiment through the DEL.					
Accomplishments/Planned Programs Subtotals	25.210	13.240	10.899	0.000	10.899

	FY 2009	FY 2010
Congressional Add: National Center for Blast Mitigation & Protection	0.000	1.200
FY 2010 Plans: -Improve high fidelity analyses for internal blast environments and weapon-target interactions -Improve internal blast models to enhance DTRA's Vulnerability Assessment & Protection Option (VAPO) and Integrated Munitions Effects Assessment (IMEA) planning tools.		

Exhibit R-2A, RDT&E Project Justification: PB 2011 Defense Threat Reduction Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RM: *WMD Battle Management*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
-Enhance computational ability for the Agency to save time in generating target solutions.		
Congressional Adds Subtotals	0.000	1.200

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 26/0603160BR: *Proliferation, Prevention and Defeat*	37.647	31.939	28.260		28.260	26.907	27.914	28.200	28.482	Continuing	Continuing

D. Acquisition Strategy

N/A

E. Performance Metrics

Percent confidence in engineering models.

Percent confidence in assessment solutions.

Number of targets successfully planned.

Time require to complete assessments.

The Defense Threat Reduction Agency Experimentation Lab is occupied by planning or execution efforts 75% of the year.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Defense Threat Reduction Agency			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 2: *Applied Research*	R-1 ITEM NOMENCLATURE PE 0602718BR: *WMD Defeat Technologies*	PROJECT RR: *Test Infrastructure*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
RR: *Test Infrastructure*	17.411	19.651	21.528	0.000	21.528	21.437	21.354	21.705	22.101	Continuing	Continuing

A. Mission Description and Budget Item Justification

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

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
RR: Test Infrastructure	17.411	19.651	21.528	0.000	21.528
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.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Defense Threat Reduction Agency		DATE: February 2010
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 Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: - Continued research and development activities for test and technology support, infrastructure development and improvement, and environmental restoration of sites and return of the sites to host facilities. - Completed classified test bed at Dugway Proving Ground. - Completed site restoration and closure document for the final Nevada Test Site Federal Facilities Agreement and Consent Order site—the last of 108 clean-up issues at 35 sites. - Acquired a mobile command post capability for the Chestnut test site at Kirtland Air Force Base, NM. - Enhanced our test infrastructure to provide support, as required, for chemical-biological sensing test events. - Conducted more than 200 test events supporting customers internal and external to the Defense Threat Reduction Agency (DTRA), including foreign allies, the Department of Defense, the Department of Energy, the Department of Homeland Security, and the State Department. *FY 2010 Plans:* - Dismantle and environmentally remediate Large Test Structure (LTS)-2 and begin replacement setup for LTS-2 to support an integrated Countering Weapons of Mass Destruction (WMD) Technologies demonstration in FY 2012. - Begin designing and procurement of a add on structure for Component Test Structure-3 for structural stress tests with Singapore. - Conduct nuclear detection and forensics testing. - Conduct nuclear detection and forensics testing for the Department of Homeland Security, Domestic Nuclear Detection Office (DNDO) in accordance with the DTRA-DNDO Memorandum of Agreement. - Conduct WMD sensor testing at the Technical Evaluation Assessment and Monitor Site (TEAMS); provide infrastructure upgrades for TEAMS. - Continue environmental remediation and compliance activities at the Nevada Test Site, Dugway Proving Grounds, White Sands Missile Range and Kirtland Air Force Base Chestnut Site.					

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
- Continue infrastructure and instrumentation upgrades to ensure test beds meet customers' advanced technology testing needs. *FY 2011 Base Plans:* - Complete construction of add on structures to Component Test Structure -3 to develop weapons effects and mitigation test data models for fire and blast in cooperation with the Singapore government with estimated start date for testing first quarter FY 2011. - Upgrade and integrate instrumentation mobile wireless "Mesh" infrastructure capabilities and improvements in support of the Department of Home Land Security (DHS/DNDO) tests conducted at DTRA and DHS/DNDO defined CONUS wide locations in support of DHS/DNSO Secure the Cities (STC), Lower Manhattan Security Initiative *(LMSI) and other functional tests as defined by DHS/DNDO during the first quarter FY 2011. - Conduct Interagency Biological Restoration Demonstration (IBRD) testing in conjunction with DoD & DHS to reduce the time and resources necessary to recover and restore wide urban areas, Military Installations, and critical infrastructure following a biological incident with estimated start date second quarter FY 2011. - Construct facility for Integrated Test Demonstration to defeat credible, threat-based scenarios with an estimated start date for testing third quarter FY 2011. - Conduct testing on 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 during the third and fourth quarters FY 2011. - Conduct WMD Aerial Collection System testing which is designed to meet U.S. Forces Korea's requirement of an "all-in-one" Chemical Biological Radiological & Nuclear sensor system for post-strike assessment (Battle Damage Assessment) of suspected WMD facilities and mobile time-sensitive targets during third and fourth quarters FY 2011. - Conduct nuclear detection and forensics testing to prevent weapons grade material/dirty bombs from entering the U.S., U.S. Territories, and Allied Nations with estimated start date fourth quarter FY 2011.					

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
- Conduct Weapons of Mass Destruction sensor testing at the Technical Evaluation Assessment and Monitor Site to detect nuclear grade material from entering the U.S., U.S. Territories, and Allied Nations through rail, ship, and air ports with estimated start date fourth quarter FY 2011. - Continue environmental remediation and compliance activities at the Nevada Test Site, Dugway Proving Grounds, White Sands Missile Range, and Kirtland Air Force Base in accordance with EPA, Safety, & Environmental guidelines throughout FY 2011. - Develop Cost Analysis Tool for Test Sites database to develop Rough Order of Magnitude estimates for different types of tests as well as different test beds during FY 2011. - Conduct tunnel work detection testing at Nevada Test Site for the Customs and Border Patrol to be able to detect tunnel work or tunnels along northern and southern borders of CONUS with estimated fourth quarter FY 2011. - Continue infrastructure and instrumentation upgrades to ensure test beds meet customers' advanced technology testing needs. - Document, prioritize, and support test infrastructure requirements.					
Accomplishments/Planned Programs Subtotals	17.411	19.651	21.528	0.000	21.528

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Number of tests executed safely, i.e., no loss of life or limb, no unintentional significant damage of property.

Number of tests that go through the milestone review process.

Number of tests that undergo environmental assessment consistent with existing Environmental Impact Statements.

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COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
RU: **Fundamental Research for Combating WMD*	14.711	13.484	10.385	0.000	10.385	10.160	10.011	9.846	9.690	Continuing	Continuing

Note

*Project title change from Basic Research for WMD Knowledge Gaps starting in FY 2010

A. Mission Description and Budget Item Justification

The Fundamental Research for Combating WMD project (1) conducts strategic studies to support Department of Defense, (2) develops decision support tools and conducts analyses to support combating Weapons of Mass Destruction (WMD) research and development investments, and (3) advances emerging technology and transitional science into viable applied technology development capabilities. The strategic studies address challenges in reducing the threat from WMD based on an assessment of the future national security environment. They also develop and maintain an evolving analytical vision of necessary and sufficient capabilities to protect the U.S. and allied forces and citizens from nuclear, biological, and chemical attack and identify gaps in these capabilities and initiate programs to fill them. The decision support tools identify key technology and performance parameters required for products generated under research and development investments. These tools also assess the expected impact on military missions and forces. The advancement of technology and science into applied technology development effort focus upon increasing the stability and utility of mid-to-long term, moderate risk but high payoff science and emerging technologies for transition to other Defense Threat Reduction Agency (DTRA) applied technology programs. This effort serves as the bridge between the bench scientist and the applied technologist.

Beginning in FY 2010, this project is rebalanced to transition the decision support tools efforts into Project RA - Systems Engineering and Innovation to enhance corporate capabilities across all projects.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
RU: Fundamental Research for Combating WMD Project RU provides (1) strategic studies to support DoD, (2) Decision support tools and analysis to support combating WMD research and development investments, and (3) early applied research for technology development.	13.511	11.564	10.385	0.000	10.385

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: - Identified and transition all suitable investigatory Science and Technology research and development projects to appropriate long-term sponsors for concept/design validation, prototype fabrication, testing, and fielding. - Identified and conducted strategic studies addressing challenges in reducing the threat from Weapons of Mass Destruction. - Exercised testbed to assess promising technologies to quantify and mitigate large area nuclear effects on systems, networks and equipment. - Continued seven “bridging” projects for early applied development of combating WMD technologies. - Completed initial operational capability for pilot program to support Department of Defense effort to utilize a web-based system for research proposal submission, evaluation and status reporting. - Continued to provide technical expertise and advice to generate the new basic research topics in support of the semi-annual solicitation. - Initiated a Mentor program and continue the sponsorship and education of the “Next Generation” of mission-critical scientific, technical and engineering expertise. - Continued examination of emerging technologies and underlying sciences applicable to combating WMD, with increased emphasis on avoiding technical surprise. *FY 2010 Plans:* - Transition decision support tools with current and outyear funding to Project RA - Systems Engineering and Innovation. - Identify and conduct strategic studies addressing challenges in reducing the threat from WMD. - Continue to exercise the testbed to assess promising technologies to quantify and mitigate large area nuclear effects on systems, networks and equipment. - Complete seven “bridging” projects for early applied development of combating WMD technologies, initiate transition to appropriate long-term sponsors for concept/design validation, prototype fabrication, testing, and fielding.					

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
- Final operational capability for pilot program to support Department of Defense effort to utilize a web-based system for research proposal submission, evaluation and status reporting. - Continue to provide technical expertise and advice to generate the new basic research topics in support of the semi-annual solicitation. - Continue examination of emerging technologies and underlying sciences applicable to combating WMD with increased emphasis on avoiding technical surprise. - Initiate new "bridging" projects for early applied development of combating WMD technologies. - Continue the mentoring, sponsorship, and education of the "Next Generation" of mission-critical scientific, technical and engineering expertise. *FY 2011 Base Plans:* - Identify and transition all suitable investigatory Science and Technology research and development projects to appropriate long-term sponsors for concept/design validation, prototype fabrication, testing, and fielding. - Identify and conduct strategic studies addressing challenges in reducing the threat from WMD. - Assess utility of continuing testbed; continue to exercise the testbed to assess promising technologies to quantify and mitigate large area nuclear effects on systems, networks and equipment. - Continue "bridging" projects for early applied development of combating WMD technologies. - Continue to provide technical expertise and advice to generate the new basic research topics in support of the semi-annual solicitation. - Continue the mentoring, sponsorship, and education of the "Next Generation" of mission-critical scientific, technical and engineering expertise.					
Accomplishments/Planned Programs Subtotals	13.511	11.564	10.385	0.000	10.385

	FY 2009	FY 2010
Congressional Add: Center for Nonproliferation Studies, Monterey Institute for International Affairs	1.200	0.000

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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
FY 2009 Accomplishments: - The main focus of CNS is to help build the knowledge base for DTRA and DoD that will allow for better understanding, anticipation, and influence of the WMD-related behavior of adversaries and to help decision-makers avoid costly mistakes and achieve national security objectives. - Studies, analyses, databases, seminars, and training, that support the DTRA mission of understanding, anticipating, preparing for, and reducing the threat from Weapons of Mass Destruction (WMD).		
Congressional Add: University Strategic Partnership *FY 2010 Plans:* -Support early technology development for the Counter-WMD mission area across multiple science areas including new materials for radiation detectors, survivable electronics, and computational modeling. -Collaborate with universities to stimulate interest in cutting edge Counter-WMD research with a strategic goal for fostering the growth of scientific talent for the Counter-WMD workforce.	0.000	1.920
Congressional Adds Subtotals	1.200	1.920

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 1/0601000BR: *DTRA Basic Research Initiative*	28.798	40.848	47.412		47.412	47.737	48.071	48.493	48.925	Continuing	Continuing

D. Acquisition Strategy

N/A

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E. Performance Metrics

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

Minimum 10% increase in the number of new universities participating in the basic research grant program from FY 2008-2010.

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.