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Exhibit R-2, PB 2010 Defense Threat Reduction Agency RDT&E Budget Item Justification **DATE:** May 2009

APPROPRIATION/BUDGET ACTIVITY					R-1 ITEM NOMENCLATURE					
0400 - Research, Development, Test & Evaluation, Defense-Wide/BA 5 - Development & Demonstration (SDD)					PE 0605000BR WMD Defeat Capabilities					
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	15.291	15.896	8.735						Continuing	Continuing
RL: Nuclear & Radiological Effects	15.291	15.896	8.735						Continuing	Continuing

A. Mission Description and Budget Item Justification

The Weapons of Mass Destruction (WMD) Defeat Capabilities program extends nuclear and radiological modeling and simulation development to system development and demonstration by developing nuclear and radiological assessment modeling tools and WMD integrated architecture to support military operational planning, weapon effects predictions, and strategic system design decisions; consolidate validated Defense Threat Reduction Agency (DTRA) modeling tools into net-centric environment for integrated functionality capable of predicting system responses to nuclear and radiological weapons producing electromagnetic, thermal, blast, shock and radiation environments in addition to chemical, biological, and conventional weapons. Key systems/environments include space assets, missiles, structures, networks, urban areas, and humans.

Efforts within this program element are re-balanced to enhance corporate capabilities in Program Element (PE) 0602718BR and PE 0603160BR to support Project RF – Detection Technology. 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. Program Change Summary (\$ in Millions)

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>
Previous President's Budget	15.296	15.946	15.767	
Current BES/President's Budget	15.291	15.896	8.735	
Total Adjustments	-0.005	-0.050	-7.032	
Congressional Program Reductions	0.000	-0.050		
Congressional Rescissions	0.000	0.000		
Total Congressional Increases	0.000	0.000		
Total Reprogrammings	0.000	0.000		
SBIR/STTR Transfer	-0.005	0.000		
Realignment	0.000	0.000	-7.032	

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APPROPRIATION/BUDGET ACTIVITY 0400 - Research, Development, Test & Evaluation, Defense-Wide/BA 5 - Development & Demonstration (SDD)	R-1 ITEM NOMENCLATURE PE 0605000BR WMD Defeat Capabilities	
<p><u>Change Summary Explanation</u></p> <p>The decrease in funding reflects the re-balancing of projects to refocus research and development efforts to meet the 21st century Combating Weapons of Mass Destruction (WMD) needs in the Defense Threat Reduction Agency (DTRA) Basic Research Initiative and WMD Defeat Technologies programs. Efforts within this program element (PE) are re-balanced to enhance corporate capabilities in PE 0602718BR and PE 0603160BR to support Project RF – Detection Technology. 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.</p>		

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Exhibit R-2a, PB 2010 Defense Threat Reduction Agency RDT&E Project Justification								DATE: May 2009		
APPROPRIATION/BUDGET ACTIVITY 0400 - Research, Development, Test & Evaluation, Defense-Wide/BA 5 - Development & Demonstration (SDD)				R-1 ITEM NOMENCLATURE PE 0605000BR WMD Defeat Capabilities					PROJECT NUMBER RL	
COST (\$ in Millions)	FY 2008 Actual	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
RL: Nuclear & Radiological Effects	15.291	15.896	8.735						Continuing	Continuing

A. Mission Description and Budget Item Justification

Advanced Modeling Systems includes three functional areas 1) Integrated Weapons of Mass Destruction Toolset (IWMDT), 2) Nuclear Capability Services (NuCS), and 3) Consequence of Execution (CoE)-Nuclear Integration. NuCS develops the capabilities for the U.S. and its allies for state-of-the-art, secure, accredited, nuclear & radiological Modeling & Simulation (M&S) capabilities. IWMDT develops the architecture, defines and implements the standards to consolidate validated Defense Threat Reduction Agency tools, and through this architecture, enables rapid access for planning, emergency response and assessment capabilities. These capabilities are used by a wide range of planners, managers, and operational and technical personnel facing the full spectrum of chemical, biological, radiological, nuclear, and high-yield explosives threats. NuCS develops the capabilities for the U.S. and its allies for state-of-the-art, secure, accredited, nuclear and radiological M&S capabilities. CoE-Nuclear Integration provides the modeling capability to U.S. Strategic Command as well as enhancing the consequence assessment integration and testing for transition of Chemical, Biological, Radiological, Nuclear, and Explosive Events Science & Technology to the Joint Effects Model, Chemical-Biological Defense Program for hazard prediction. This sub-project extends research and development to system development and demonstration.

Funds are realigned from this project due to re-balancing of efforts within the Nuclear Technologies program. The impacts are in the areas of advanced modeling systems and delay full 3-D modeling and simulation efforts for electromagnetic pulse response and consequence management predictions, to include second and third order affects.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2008	FY 2009	FY 2010	FY 2011
RL: Nuclear & Radiological Effects	15.291	15.896	8.735	
<p><i>FY 2008 Accomplishments:</i></p> <ul style="list-style-type: none"> - In coordination with Chemical, Biological, Radiological, and Nuclear program, continued to manage the development and transfer of basic science initiatives to Programs of Records through the use of a robust disciplined process within the IWMDT to provide transferable technology, processes, and documentation. - Continued to provide a one-point entry portal providing common Chemical, Biological, Radiological, and Nuclear (CBRN) capabilities distributed to the edge. At the edge, the user is provided a rapidly adaptable operational assessment based on validated codes, subject-matter-expert support and cutting-edge technology capable of real-time assessments. 				

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Exhibit R-2a, PB 2010 Defense Threat Reduction Agency RDT&E Project Justification			DATE: May 2009	
APPROPRIATION/BUDGET ACTIVITY 0400 - Research, Development, Test & Evaluation, Defense-Wide/BA 5 - Development & Demonstration (SDD)	R-1 ITEM NOMENCLATURE PE 0605000BR WMD Defeat Capabilities		PROJECT NUMBER RL	
B. Accomplishments/Planned Program (\$ in Millions)	FY 2008	FY 2009	FY 2010	FY 2011
<ul style="list-style-type: none"> - Completed Nuclear Capability Services (NuCS) Integration Spiral 2 by demonstrating and providing over 80% of the customer-required nuclear weapon effects modeling and simulation capabilities in a net-centric environment. This includes transforming at least 25% of the mission required legacy (pre-2005) Defense Threat Reduction Agency codes to meet Verification, Validation, and Accreditation standards. - Delivered updated Radiological Nuclear-improved fallout nuclear weapon and radiological hazard transport models for integration into Hazard Prediction and Assessment Capability version 5.0. - Delivered Batchmaker for enhanced batch processing meeting U.S. Strategic Command requirements. <p><i>FY 2009 Plans:</i></p> <ul style="list-style-type: none"> - Complete Nuclear Weapon Effects Users Group accreditation of modeling and simulation in the NuCS. - Provide fully distributed, transportable and mobile CBRN capability solution meeting the CBRN requirements of forward deployed warfighters, first responders, analysts, and future planning users. Through this capability, users customize the CBRN portal to meet their decision support, analysis, and collaborative mission planning through a dynamically fused view. - Deliver NuCS Spiral 2 capabilities through the Integrated Weapons of Mass Destruction Toolset framework meeting 80% of customer-required nuclear weapon effects Modeling & Simulation (M&S), enabling technology transfer to Program of Record and external systems as required. - Initiate NuCS Spiral 3 development addressing the remaining 20% of customer-required nuclear weapon effect M&S capabilities. - Deliver nuclear weapon improved water/urban burst prototype. <p><i>FY 2010 Plans:</i></p> <ul style="list-style-type: none"> - Establish an operational baseline Continuity of Operations capability for geographically separated real-time backup of all CBRN and Explosive Events capabilities. - Initial implementation of Net Centric Enterprise Services messaging and collaboration for use across exercise and operational deployments. - Migrate nuclear effects framework and Consequence of Execution – Nuclear Integration efforts to program of records for community use and broader integration. - Data replication synchronization implemented for disparate deployment methods. - Complete updated data verification from Nevada Test Site digs conducted in FY 2008. 				

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Exhibit R-2a, PB 2010 Defense Threat Reduction Agency RDT&E Project Justification		DATE: May 2009
APPROPRIATION/BUDGET ACTIVITY 0400 - Research, Development, Test & Evaluation, Defense-Wide/BA 5 - Development & Demonstration (SDD)	R-1 ITEM NOMENCLATURE PE 0605000BR WMD Defeat Capabilities	PROJECT NUMBER RL

C. Other Program Funding Summary (\$ in Millions)

	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	Cost To Complete	Total Cost
20/0602718BR/WMD Defeat Technologies	18.784	36.338	19.704						Continuing	Continuing

D. Acquisition Strategy

The programs for Integrated Weapons of Mass Destruction Toolset, Nuclear Capability Services, and Consequence of Execution are executed through competed, Cost Plus Award-Fee and Cost Plus Fixed-Fee contracts. These contracts are normally 3-year efforts 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 Nuclear Weapons Effects (NWE) modeling and simulation capabilities over networks, e.g. Department of Defense Global Information Grid.

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

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Exhibit R-3, RDT&E Project Cost Analysis								Date: May 2009				
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide / BA-5			PROGRAM ELEMENT 0605000BR					PROJECT NAME AND NUMBER WMD Defeat Capabilities				
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost (\$000)	FY 2008 Cost (\$000)	FY 2008 Award Date	FY 2009 Cost (\$000)	FY 2009 Award Date	FY 2010 Cost (\$000)	FY 2010 Award Date	Cost to Complete (\$000)	Total Cost (\$000)	Target Value of Contract
System Development--IWMDT	C/CPAF	SAIC -- San Diego, CA	0	5450	Nov-07	5350	Nov-08	3303	Nov-09	28000	42103	42000
System Development--NuCS	C/CPFF	Applied Research Associates -- Albuquerque, NM	0	1600	Nov-07	1500	Nov-08	1600	Nov-08	2390	7090	5658
System Development--COE	C/CPFF	Titan -- Kingstowne, VA	0	2125	Nov-07	2024	Nov-08	890	Nov-08	2390	7429	4490
System Development--Component Contracts	Various	Various	0	1966	Various	1806	Dec-08	957	Dec-09	4780	9509	8452
Subtotal Product Development			0	11141		10680		6750		37561	66131	60600
Remarks: The "Various" reported reflects multiple contracts, mainly CPFF.												
Configuration Management	C/CPAF/CPFF	SAIC, ARA, Titan	0	61	Nov-07	61	Nov-08			180	302	302
Software Integration	C/CPAF/CPFF	SAIC, ARA, Titan	0	1300	Nov-07	1300	Nov-08			6079	8679	8679
Technical Data	C/CPAF/CPFF	SAIC, ARA, Titan	0	21	Nov-07	21	Nov-08			70	112	112
Engineering Services	C/CPAF/CPFF	SAIC, ARA, Titan	0	607	Nov-07	657	Nov-08			1540	2804	2804
Accreditation & Certification	C/CPAF/CPFF	SAIC, ARA, Titan	0	61	Nov-07	61	Nov-08			180	302	302
Subtotal Support			0	2050		2050		0		8049	12199	12199
Remarks												

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Exhibit R-3, RDT&E Project Cost Analysis (page 2)									Date: May 2009			
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide / BA-5			PROGRAM ELEMENT 0605000BR					PROJECT NAME AND NUMBER WMD Defeat Capabilities				
Cost Categories (Tailor to WBS, or System/Item Requirements)	Contract Method & Type	Performing Activity & Location	Total PYs Cost (\$000)	FY 2008 Cost (\$000)	FY 2008 Award Date	FY 2009 Cost (\$000)	FY 2009 Award Date	FY 2010 Cost (\$000)	FY 2010 Award Date	Cost to Complete (\$000)	Total Cost (\$000)	Target Value of Contract
Developmental Test & Evaluation	C/CPAF/CPFF	SAIC, ARA, Titan	0	525		525	Nov-07	513	Nov-08	2012	3575	3050
Operational Test & Evaluation	C/CPAF/CPFF	SAIC, ARA, Titan	0	525		525	Nov-07	513	Nov-08	2012	3575	3050
Subtotal T&E			0	1050		1050		1025		4024	7149	6099
Remarks												
Program Management	C/CPAF/CPFF	SAIC, ARA, Titan	0	525		525	Nov-07	513	Nov-08	2012	3575	3050
Travel	C/CPAF/CPFF	SAIC, ARA, Titan	0	263		263	Nov-07	256	Nov-08	1006	1788	1525
Overhead	C/CPAF/CPFF	SAIC, ARA, Titan	0	263		263	Nov-07	256	Nov-08	1006	1788	1525
Subtotal Management			0	1050		1050		1025		4024	7150	6099
Remarks												
Total Cost			0	15291		14830		8800		53658	92630	77289
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 competed, CPAF contract for \$12,425,028 over a 3-year period. At end of FY 2006, its follow-on contract was awarded with an initial \$300,000 increment. IWMDT program efforts have continued into FY 2009 with \$25,926,730.49 now applied. Likewise, the NuCS program was funded under a competed, CPFF contract over a 3-year period with funding of \$5,913,235 applied through FY 2008; a follow-on contract has now been awarded with initial funding to date of \$2,239,880 to continue program efforts. COE was funded under a competed, CPFF contract with increments to date of \$6,422,679 total. Beginning in FY 2008, these activities began funding under PE 0605000BR.												

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Exhibit R-4a, Program Schedule Detail						Date: May 2009		
Appropriation/Budget Activity RDT&E, Defense Wide BA 5		Program Element Number and Name: PE 0605000BR WMD Capabilities			Project Name and Number: Nuclear and Radiological Effects -- RL			
Schedule Profile	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Integrated Weapons of Mass Destruction Toolset (IWMDT) -- System Development, Test, and Integration – Phase 1	1-4Q	1-4Q						
IWMDT -- System Development, Test, and Integration -- Phase 2			1-4Q	1-4Q	1-4Q			
IWMDT -- System Development, Test, and Integration – Phase 3						1-4Q	1-4Q	1-4Q
Consequence of Execution (COE) Development and Integration	1-4Q	1-4Q						
COE Integration – Phase 2			1-4Q	1-4Q	1-4Q			
COE Integration—Phase 3						1-4Q	1-4Q	1-4Q
Nuclear Capabilities Services (NuCS) – Spiral Development, Test, and Integration – Phase 1	1-4Q	1-4Q						
NuCS -- Spiral 2 Development			1-4Q	1-4Q	1-4Q			
NuCS -- Spiral 3 Development						1-4Q	1-4Q	1-4Q