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<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>		Date: February 2008
<b>APPROPRIATION/BUDGET ACTIVITY</b> RDT&E, Defense-Wide/Applied Research - BA2	<b>R-1 ITEM NOMENCLATURE:</b> WMD Defeat Technologies; 0602718BR	

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
<b>Total 0602718BR Cost</b>	<b>0.000</b>	<b>211.325</b>	<b>211.078</b>	<b>214.469</b>	<b>219.535</b>	<b>209.906</b>	<b>207.962</b>
Project RA - Systems Engineering and Innovation	0.000	27.600	26.342	24.870	23.770	23.772	23.727
Project RF - Detection Technology	0.000	48.499	39.498	43.707	48.387	41.392	37.607
Project RG - Advanced Energetics & Counter WMD Weapons	0.000	27.899	30.748	28.500	27.445	22.447	20.879
Project RI - Nuclear Survivability	0.000	8.925	10.421	10.413	5.588	5.588	5.588
Project RL - Nuclear & Radiological Effects	0.000	34.580	36.650	39.795	44.428	44.342	46.069
Project RM - WMD Battle Management	0.000	27.158	29.137	25.750	26.320	25.769	27.495
Project RR - Test Infrastructure	0.000	19.903	19.986	20.196	20.367	20.367	20.367
Project RU - Basic Research for WMD Knowledge Gaps	0.000	16.761	18.296	21.238	23.230	26.229	26.230

**A. Mission Description and Budget Item Justification:**

The mission of the DTRA is to safeguard America and its allies from WMD by reducing the present threat and preparing for the future threat. This mission directly reflects several national and DoD-level 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, Strategic Planning Guidance, Contingency Planning Guidance, National Military Strategy for Combating WMD, National Military Strategic Plan for the War on Terrorism, Joint Strategic Capabilities Plan (including the Nuclear Annex), Security Cooperation Guidance, Quadrennial Defense Review, Nuclear Posture Review, and Defense Transformation Planning Guidance (TPG). 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 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 as delineated in the TPG.

Project RA provides the research and development both for systems engineering and analysis support across all other Projects and innovative counterproliferation research.

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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 DoD requirements for combating terrorism, counter- and non-proliferation, homeland defense, and international initiatives and agreements.

Project RG develops advanced technologies and weapon concepts to validate their applicability as counter WMD weapon systems.

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

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

Project RM provides (1) full scale testing of counter WMD weapon effects, sensor performance, and weapon delivery optimization, (2) weapon effects modeling, and (3) the DTRA 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 strategic studies to support DoD and national strategies to combat WMD. These strategic studies address challenges in reducing the threat from WMD based on an assessment of the future national security environment.

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**B. Program Change Summary:**

(\$ in Millions)	FY 2007	FY 2008	FY 2009
<b>Previous President's Budget</b>	<b>0.000</b>	<b>182.416</b>	<b>204.501</b>
<b>Current President's Budget</b>	<b>0.000</b>	<b>211.325</b>	<b>211.078</b>
<b>Total Adjustments</b>	<b>0.000</b>	<b>28.909</b>	<b>6.577</b>
<b>Congressional program reductions</b>		<b>-1.491</b>	
<b>Congressional rescissions</b>			
<b>Congressional increases</b>		<b>30.400</b>	
<b>Reprogrammings</b>			<b>6.577</b>
<b>SBIR/STTR Transfer</b>			

**Change Summary Explanation:** Additional funds of \$7 million in FY 2009 related to the U.S. Strategic Command's Budget Change Proposal (Standoff Nuclear Detection) to "research, determine feasibility of, and develop standoff nuclear detection capabilities using high energy muon beams".

**C. Other Program Funding Summary:** See Exhibit R-2a.

**D. Acquisition Strategy:** Not Applicable.

**E. Performance Metrics:** Program cost, schedule and performance are measured using a systematic approach with approved programs and methods. The results of these measurements are presented to DTRA management on a regular basis to determine program effectiveness and to provide new direction as needed to ensure the efficient use of resources. Program specific performance metrics are outlined within each project description.

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<b>Exhibit R-2a, RDT&amp;E Budget Item Justification</b>		Date: February 2008
<b>APPROPRIATION/BUDGET ACTIVITY</b> RDT&E, Defense-Wide/Applied Research - BA2	<b>PROJECT NAME AND NUMBER:</b> 0602718BR Project RA – Systems Engineering and Innovation	

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project RA - Systems Engineering and Innovation	0.000	27.600	26.342	24.870	23.770	23.772	23.727

\* Funding and activities realigned from Projects BB, BD, BE, BF, BG, and BH of Program Element (PE) 0602716BR and PE 0602717BR in FY 2008.

**A. Mission Description and Budget Item Justification:**

This project provides systems engineering and analysis support across all other Projects and innovative counterproliferation research. Provide Systems Engineering reachback WMD technical expertise interface to Warfighters and First Responders with DTRA's Combating WMD Research and Development subject matter experts. Provides research and development analysis necessary for the management of the Research and Development Enterprise, to include strategic planning, new initiatives in information management and business technology, cooperation, and ventures with new customers, and accomplishment of high-level, short notice special projects. Conduct counterproliferation research and development to investigate, identify, develop and transition innovative technologies from DTRA, other government agencies, industry, academia and international Science and Technology partners into the respective DTRA research and development programs. Provide technical support to the DTRA London Office.

**B. Accomplishments/Planned Program:**

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009
Project RA - Systems Engineering and Innovation	0.000	27.600	26.342

\* Funding and activities realigned from Projects BB, BD, BE, BF, BG, and BH of Program Element (PE) 0602716BR and PE 0602717BR in FY 2008.

**Performance Metrics:**

- Number of Requests for Information and run equivalents per year.
- Number of exercise and operations supported.
- Student days of training per year and decision support tools covered.
- New capabilities delivered and transitioned to Operation and Maintenance.

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**FY 2007 Accomplishments:**

- Not Applicable. See Projects BB, BD, BE, BF, BG, and BH of Program Element (PE) 0602716BR and PE 0602717BR in FY 2008.

**FY 2008 Plans:**

- Continue support for the Research and Development Enterprise in requirements and gap analysis to assist program managers identify, conduct, and deliver innovative science and technology to combat WMD.
- Complete development of the Arms Control Enterprises System Strategic Module to incorporate nuclear reporting requirements of international treaties, and transition completed module.
- 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.

**FY 2009 Plans:**

- Continue support for the Research and Development Enterprise in requirements and gap analysis to assist program managers identify, conduct, and deliver innovative science and technology to combat WMD.
- Continue 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.

**C. Other Program Funding Summary:**

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009
<b>PE 0603160BR:</b> Project RA - Systems Engineering and Innovation	0.000	8.917	3.652

**D. Acquisition Strategy:** Not Applicable.

**E. Major Performers:** Not Applicable.

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<b>Exhibit R-2a, RDT&amp;E Budget Item Justification</b>		Date: February 2008
<b>APPROPRIATION/BUDGET ACTIVITY</b> RDT&E, Defense-Wide/Applied Research - BA2	<b>PROJECT NAME AND NUMBER:</b> 0602718BR Project RF –Detection Technology	

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project RF - Detection Technology	0.000	48.499	39.498	43.707	48.387	41.392	37.607

\* Funding and activities realigned from Projects BG and BH of Program Element (PE) 0602716BR and PE 0602717BR in FY 2008.

### A. Mission Description and Budget Item Justification:

Detection Technology 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 DoD requirements for combating terrorism, counter- and non-proliferation, homeland defense, and international initiatives and agreements. It develops the tools, technologies, communications, models, databases, and displays for forensic sampling and analysis of post-nuclear detonation debris fields to support the accurate identification and characterization of the weapons and the sources of the material employed. 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.

### B. Accomplishments/Planned Program:

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009
Project RF - Detection Technology	0.000	48.499	39.498

\* Funding and activities realigned from Projects BG and BH of PE 0602716BR and PE 0602717BR.

#### Performance Metrics:

- Completion and successful laboratory testing of the helium dimer Compton imager.
- Successful completion of the individual digital dosimeter project.
- Increased standoff detection distance for nuclear material detection.
- Improved attribution tool capabilities.

#### FY 2007 Accomplishments:

- Not Applicable. See Projects BG and BH of PE 0602716BR and PE 0602717BR.

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<b>APPROPRIATION/BUDGET ACTIVITY</b> RDT&E, Defense-Wide/Applied Research - BA2	<b>PROJECT NAME AND NUMBER:</b> 0602718BR Project RF –Detection Technology	

**FY 2008 Plans:**

- Perform laboratory 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. Validate performance of new detector materials, imaging and spectroscopy systems, and signals analysis methods.
- Investigate approaches to achieve detection of nuclear material at over 100 meters, through stimulating detectable emissions from shielded nuclear materials. Approach will focus on generating highly-directional, high-energy beams of photons or particles. Potential technologies include, but are not limited to, particle accelerators, Bremsstrahlung gamma-ray generators, neutron generators, and muon generators.
- Improve capability to collect radionuclide materials in post-detonation field environments, conduct rapid analysis, and contribute actionable information to the attribution process.

**FY 2009 Plans:**

- 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.
- Design systems capable of generating highly-directional, high-energy beams of photons or particles. Potential technologies include, but are not limited to, particle accelerators, Bremsstrahlung gamma-ray generators, neutron generators, and muon generators.
- Demonstrate capability to collect radionuclide materials in post-detonation field environments, conduct rapid analysis, and contribute actionable information to the attribution process.
- Investigate the use of muon beams to stimulate increased signatures in nuclear material at standoff ranges (more than 1 kilometer).

**C. Other Program Funding Summary:**

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009
<b>PE 0603160BR:</b> Project RF – Detection Technology	0.000	43.640	40.018

**D. Acquisition Strategy:** Not Applicable.

**E. Major Performers:** Not Applicable.

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<b>Exhibit R-2a, RDT&amp;E Budget Item Justification</b>	Date: February 2008
<b>APPROPRIATION/BUDGET ACTIVITY</b> RDT&E, Defense-Wide/Applied Research - BA2	<b>PROJECT NAME AND NUMBER:</b> 0602718BR Project RG – Advanced Energetics and Counter WMD Weapons

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project RG - Advanced Energetics & Counter WMD Weapons	0.000	27.899	30.748	28.500	27.445	22.447	20.879

\* Funding and activities realigned from Projects BD and BF of Program Element (PE) 0602716BR in FY 2008.

**A. Mission Description and Budget Item Justification:**

This project provides applied research supporting defeat of 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 bunker buster capability that produces a threshold of five-fold over current bunker buster capability by FY 2009, 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:**

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009
Project RG - Advanced Energetics & Counter WMD Weapons	0.000	27.899	30.748

\* Funding and activities realigned from Projects BD and BF of PE 0602716BR in FY 2008.

**Performance Metrics:**

- Number of large scale tests completed.
- Percent increase of Counter WMD weapon performance compared to fielded weapons (e.g. Bomb, Live Unit (BLU)-109 and BLU-113).

**FY 2007 Accomplishments:**

- Not Applicable. See Projects BD and BF of PE 0602716BR.



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**FY 2008 Plans:**

- Continue development of technologies for counterforce agent defeat, advanced payloads, counter WMD payload delivery systems, and advanced counter WMD weapons.
- Conduct flight demonstration tests of the Massive Ordnance Penetrator to demonstrate it’s capability against Hard and Deeply Buried Targets (HDBTs).
- Demonstrate prototype of full-scale live simulant integrated diagnostic architecture supporting test of agent defeat weapons.
- Continue Precision Large Payload Delivery (PMOD) Concept Development and Preliminary Design supporting ten-fold increase of counter-WMD weapon effectiveness over fielded weapons.
- Begin non-kinetic payload development for functional defeat of WMD targets.

**FY 2009 Plans:**

- Continue development of technologies for counterforce agent defeat, advanced payloads, counter WMD payload delivery systems, and advanced counter WMD weapons.
- Complete integration/testing of Insensitive Munitions Agent Defeat Bomb, Live Unit-109 Payload.
- Complete Counter WMD Deny Payload component test.
- Continue full-scale tunnel lethality tests on promising high-energy fills.
- Conduct the Advanced Penetrator for Stealth Platforms lethality assessment for HDBT Defeat.
- Continue PMOD design, refinement of concepts, and technology assessments.

**C. Other Program Funding Summary:**

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009
<b>PE 0603160BR:</b> Project RG - Advanced Energetics & Counter WMD Weapons	0.000	19.549	20.550

**D. Acquisition Strategy:** Not Applicable.

**E. Major Performers:** Not Applicable.

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<b>APPROPRIATION/BUDGET ACTIVITY</b> RDT&E, Defense-Wide/Applied Research - BA2	<b>PROJECT NAME AND NUMBER:</b> 0602718BR Project RI - Nuclear Survivability	

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project RI - Nuclear Survivability	0.000	8.925	10.421	10.413	5.588	5.588	5.588

\* Funding and activities realigned from Projects BD of Program Element (PE) 0602716BR and Projects BG and BH of PE 0602717BR in FY 2008.

**A. Mission Description and Budget Item Justification:**

The Nuclear Survivability Technology Project (NSTP) 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. Emphasis is on ionizing radiation effects and Electromagnetic Pulse (EMP). The NSTP provides Radiation Hardened Microelectronics, Nuclear Weapons Effects test capability, and EMP hardening techniques and protocols.

The Simulation Technology area is being discontinued starting in FY 2007 with disposition of the West Coast Facility, San Leandro, CA. Historically it has provided the test capability to produce a radiation environment similar to that of a nuclear detonation. These nuclear weapon effects simulators are used to validate nuclear survivability requirements for DoD missile and space systems, conduct research in radiation effects, and validate computational models.

The Nuclear Technology Analysis Support provides support for the Joint Atomic Information Exchange Group and the international Nuclear Weapons Effects Users' Group (NWEUG). The NWEUG 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:**

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009
Project RI - Nuclear Survivability	0.000	8.925	10.421

\* Funding and activities realigned from Projects BD of PE 0602716BR and Projects BG and BH of PE 0602717BR in FY 2008.

**Performance Metrics:**

- Complete disposition of simulator hardware by September 30, 2010.

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- Nuclear Weapons Effects Users' Group (NWEUG): Coordinate and integrate nuclear weapon effects needs, capabilities and programs across the defense community and provide accreditation authority for all nuclear-related modeling and simulation.

**FY 2007 Accomplishments:**

- Not Applicable. See Projects BG and BH of Program Element (PE) 0602717BR.

**FY 2008 Plans:**

- Complete disposition of DECADE and continue West Coast Facility (WCF) simulator hardware removal. The WCF cleanup is expected to continue through FY 2010.
- Support NWEUG conference at a U.S. location or in the United Kingdom.

**FY 2009 Plans:**

- Continue disposition of WCF equipment.
- Support NWEUG conference at a U.S. location or in the United Kingdom.

**C. Other Program Funding Summary:**

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009
<b>PE 0603160BR:</b> Project RI - Nuclear Survivability	0.000	18.848	18.867

**D. Acquisition Strategy:** Not Applicable.

**E. Major Performers:** Not Applicable.

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<b>APPROPRIATION/BUDGET ACTIVITY</b> RDT&E, Defense-Wide/Applied Research - BA2	<b>PROJECT NAME AND NUMBER:</b> 0602718BR Project RL - Nuclear & Radiological Effects	

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project RL - Nuclear & Radiological Effects	0.000	34.580	36.650	39.795	44.428	44.342	46.069

\* Funding and activities realigned from Project BD of Program Element (PE) 0602716BR in FY 2008.

**A. Mission Description and Budget Item Justification:**

Nuclear and Radiological Effects develops nuclear and radiological assessment modeling tools to support military operational planning, weapon effects predictions, and strategic system design decisions; consolidate validated DTRA 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 combatant commands and DoD.

**B. Accomplishments/Planned Program:**

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009
Project RL - Nuclear & Radiological Effects	0.000	34.580	36.650

\* Funding and activities realigned from Project BD of PE 0602716BR in FY 2008.

**Performance Metrics:**

- Complete transition of all hazard source terms to the Chem-Bio Defense Program's Joint Effects Model (JEM) Block II enhancing our ability to predict hazards associated with WMD.
- Develop and integrate baseline database of 80% of current foreign nuclear reactors and enrichment facilities.
- Provide DoD 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.

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**FY 2007 Accomplishments:**

- Not Applicable. See Project BD of Program Element (PE) 0602716BR.

**FY 2008 Plans:**

- Enhance and develop models allowing the predictions and analysis of nuclear survivability for military communication satellites, the power grid as supporting the Global Information Grid (GIG), and the Army' Future Combat System.
- Continue to provide nuclear electromagnetic hardening and survivability support to the Joint Staff, Defense Information Systems Agency (DISA), and Missile Defense Agency (MDA). Focus areas anticipated include the Nuclear Command and Control System and GIG.
- Complete the high altitude nuclear weapon detonation data review in support of High Altitude Electromagnetic Pulse (EMP) modeling.
- Conduct tests of liquid and powder Radiological Dispersal Devices (RDD) materials and complete RDD reference book.
- Develop and integrate baseline database of 80% of current foreign nuclear infrastructure facilities into targeting and hazard prediction codes.

**FY 2009 Plans:**

- Continue to provide nuclear electromagnetic hardening and survivability support to the Joint Staff, DISA, and MDA. Focus areas anticipated include the Nuclear Command and Control System and GIG.
- Complete development and integration of the EMP prediction model and low equivalent dose radiation cancer algorithms.
- Assess EMP effects on power grid components to determine impacts to the DoD's GIG.
- Initiate component fragility testing and develop fuel history code for Russian and Canadian designed nuclear power plants.

**C. Other Program Funding Summary:**

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009
<b>PE 0605000BR:</b> RL - Nuclear & Radiological Effects	0.000	15.296	15.946

**D. Acquisition Strategy:** Not Applicable.

**E. Major Performers:** Not Applicable.

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<b>APPROPRIATION/BUDGET ACTIVITY</b> RDT&E, Defense-Wide/Applied Research - BA2	<b>PROJECT NAME AND NUMBER:</b> 0602718BR Project RM - WMD Battle Management	

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project RM - WMD Battle Management	0.000	27.158	29.137	25.750	26.320	25.769	27.495

\* Funding and activities realigned from Projects BD and BF of Program Element (PE) 0602716BR in FY 2008.

### A. Mission Description and Budget Item Justification:

This project provides applied research supporting (1) full scale testing of counter WMD weapon effects, sensor performance, and weapon delivery optimization, (2) weapon effects modeling, and (3) the DTRA Experimentation Lab.

This project is maturing these capabilities to provide combatant commanders a variety of options to attack 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 DoD-wide and supports tests and demonstrations of new capabilities for the counter 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, and creates/modifies software to more accurately model cratering effects, fragmentation (both primary & secondary), equipment/container fragility, structural response, quasi-static dispersion & damage, and penetration.

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.

### B. Accomplishments/Planned Program:

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009
Project RM - WMD Battle Management	0.000	27.158	29.137

\* Funding and activities realigned from Projects BD and BF of PE 0602716BR in FY 2008.

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**Performance Metrics:**

- Number of tests completed.
- Percent increase of model confidence.

**FY 2007 Accomplishments:**

- Not Applicable. See Projects BD and BF of Program Element 0602716BR.

**FY 2008 Plans:**

- Conduct demonstration of tunnel defeat using the tunnel collapse/breach methodology using a statically emplaced weapon.
- Enhance modeling of Chem/Bio effects on human entities and integrate DTRA models with next-generation U.S. Army Chemical, Biological, Radiological and Nuclear (CBRN) simulation federates in experimentation.
- Provide CBRN defense solutions for Joint Concept Development & Experimentation experiment focused on examining potential solutions to joint/combined urban operations challenges and multi-national collaboration to include Joint Forces Command Multi-National Experiment.
- Integrate Combined Enterprise Regional Information Exchange System Coalition Capabilities to increase effectiveness of the DTRA Experimentation Lab.
- Continue research and development supporting counter WMD weapons effect modeling & testing and the DTRA Experimentation Lab.
- Deliver Improved Groundshock Vulnerability Number capability to Defense Intelligence Agency and U.S. Strategic Command to replace existing one dimensional vulnerability assessment models with fast-running two dimensional models for strategic targeting.

**FY 2009 Plans:**

- Complete Quasi Static Pressure Dispersion Damage tests to improve understanding of weapon effects phenomenology and enhance WMD planning tools.
- Continue research and development supporting counter WMD weapons effect modeling & testing and the DTRA Experimentation Lab.
- Conduct defeat demonstration of multi-story building with basement bunker using available air-delivered weapons and U.S. Air Force tactics, techniques, and procedures.
- Implement multiple security levels across DTRA information domains to increase effectiveness of the DTRA Experimentation Lab.
- Formulate Combined Simulation Federation to increase effectiveness of the DTRA Experimentation Lab.

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<b>Exhibit R-2a, RDT&amp;E Budget Item Justification</b>		Date: February 2008
<b>APPROPRIATION/BUDGET ACTIVITY</b> RDT&E, Defense-Wide/Applied Research - BA2	<b>PROJECT NAME AND NUMBER:</b> 0602718BR Project RM - WMD Battle Management	

**C. Other Program Funding Summary:**

Cost (\$ in Millions)		FY 2007	FY 2008	FY 2009
<b>PE 0603160BR:</b> Project RM - WMD Battle Management		0.000	55.475	55.621

**D. Acquisition Strategy:** Not Applicable.

**E. Major Performers:** Not Applicable.



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<b>Exhibit R-2a, RDT&amp;E Budget Item Justification</b>		Date: February 2008
<b>APPROPRIATION/BUDGET ACTIVITY</b> RDT&E, Defense-Wide/Applied Research - BA2	<b>PROJECT NAME AND NUMBER:</b> 0602718BR Project RR - Test Infrastructure	

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project RR - Test Infrastructure	0.000	19.903	19.986	20.196	20.367	20.367	20.367

\* Funding and activities realigned from Project BE of Program Element (PE) 0602716BR in FY 2008.

**A. Mission Description and Budget Item Justification:**

This project 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. 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 DoD and supports the counterproliferation pillar of the National Strategy to Combat WMD.

**B. Accomplishments/Planned Program:**

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009
Project RR - Test Infrastructure	0.000	19.903	19.986

\* Funding and activities realigned from Project BE of PE 0602716BR in FY 2008.

**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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<b>Exhibit R-2a, RDT&amp;E Budget Item Justification</b>		Date: February 2008
<b>APPROPRIATION/BUDGET ACTIVITY</b> RDT&E, Defense-Wide/Applied Research - BA2	<b>PROJECT NAME AND NUMBER:</b> 0602718BR Project RR - Test Infrastructure	

**FY 2007 Accomplishments:**

- Not Applicable. See Project BE of Program Element 0602716BR.

**FY 2008 Plans:**

- Continue to upgrade and integrate facilities and support personnel from the Technical Evaluation Assessment Monitoring Site.
- Continue 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.
- Complete Cultural Resource Assessment and seven of seven site studies (Nevada Test Site).
- Large Test Structure-1&2 Demolition and Joint Air Surface Standoff Missile Test structure demolition.
- Improve test infrastructure by acquiring state of the art instrumentation, to include: Digital Direct Shear Machine, updated Global Positioning System, Global Information System, and a Vertical Wind Profiler.
- Continue with environmental remediation of the Nevada Test Site.
- Continue to acquire microwave systems to remotely operate and monitor the instrumentation systems, transmit and receive video and data, control timing and firing, transmit and receive Voice Over Internet Protocol, and control and receive data from the Remote Instrumentation Platform.

**FY 2009 Plans:**

- Continue 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.
- Complete construction of an engineering building at Dugway Proving Ground.
- Complete Federal Facilities Agreement and Consent Order compliance.
- Acquire a mobile command post capability for the Chestnut test site at Kirtland Air Force Base, NM.
- Enhance our test infrastructure to provide support, as required, for chemical-biological sending test events.

**C. Other Program Funding Summary:** Not Applicable.

**D. Acquisition Strategy:** Not Applicable.

**E. Major Performers:** Not Applicable.

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<b>Exhibit R-2a, RDT&amp;E Budget Item Justification</b>		Date: February 2008
<b>APPROPRIATION/BUDGET ACTIVITY</b> RDT&E, Defense-Wide/Applied Research - BA2	<b>PROJECT NAME AND NUMBER:</b> 0602718BR Project RU – Basic Research for WMD Knowledge Gaps	

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project RU - Basic Research for WMD Knowledge Gaps	0.000	16.761	18.296	21.238	23.230	26.229	26.230

\* Funding and activities realigned from Project BD of Program Element (PE) 0602716BR in FY 2008.

**A. Mission Description and Budget Item Justification:**

This project conducts strategic studies to support the DoD and national strategies to combat WMD. 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 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.

**B. Accomplishments/Planned Program:**

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009
Project RU - Basic Research for WMD Knowledge Gaps	0.000	16.761	18.296

\* Funding and activities realigned from Project BD of PE 0602716BR in FY 2008.

**Performance Metrics:**

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

**FY 2007 Accomplishments:**

- Not Applicable. See Project BD of PE 0602716BR.

**FY 2008 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.
- Continue and expand the investigation of promising candidate advanced applied scientific and technical research and development projects.
- Continue the sponsorship and education of the “Next Generation” of mission-critical scientific, technical and engineering expertise.
- Continue examination of emerging technologies and underlying sciences applicable to combating WMD, with increased emphasis on

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avoiding technical surprise.

**FY 2009 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.
- Continue and expand the investigation of promising candidate advanced applied scientific and technical research and development projects.
- Continue the sponsorship and education of the “Next Generation” of mission-critical scientific, technical and engineering expertise.
- Continue examination of emerging technologies and underlying sciences applicable to combating WMD, with increased emphasis on avoiding technical surprise.

**C. Other Program Funding Summary:**

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009
<b>PE 0601000BR:</b> RU - Basic Research for WMD Knowledge Gaps	0.000	10.831	18.000

**D. Acquisition Strategy:** Not Applicable.

**E. Major Performers:** Not Applicable.