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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 Technology; 0602716BR	

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
<b>Total 0602716BR Cost</b>	<b>214.702</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>
Project BC - Force Protection & Technology App.	0.592	0.000	0.000	0.000	0.000	0.000	0.000
Project BD - Weapons Effects Technologies	71.774	0.000	0.000	0.000	0.000	0.000	0.000
Project BE - Testing Technologies & Integration	15.819	0.000	0.000	0.000	0.000	0.000	0.000
Project BF - CP Operational Warfighter Support	111.405	0.000	0.000	0.000	0.000	0.000	0.000
Project BG - Nuclear Operations	15.112	0.000	0.000	0.000	0.000	0.000	0.000

**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. The approach to this challenge is contained within the three pillars of the DTRA mission\*\*: non-proliferation, counterproliferation and consequence management. This program element specifically funds technologies necessary to defeat the threat from WMD.

Project BC provides assessment and mitigation technologies through mission vulnerability assessments of strategic systems while ensuring that recommendations for improvement are implemented through training, design, and construction to enhance force protection, vulnerability mitigation, and collective protection.

Project BD provides the research and development underpinning for the next generation of agent defeat, deny and disrupt counterforce weapons to meet WMD threat. This project seeks answers to these challenges by using state-of-the-art science and engineering capabilities, novel payload development and evaluation capability, and precision laboratory and field testing capabilities.

Project BE provides a unique national test bed capability for simulated WMD facility characterization, weapon-target interaction, and WMD facility defeat testing 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 weapons use against military or civilian systems/targets.

Project BF provides the bridge between the WMD Defeat Technology base and operational and intelligence community needs. The overall project goal is to support the Joint Chiefs of Staff, the warfighting Combatant Commanders and Services/agencies engaged in countering WMD threats and to protect the

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U.S. and its allies against military or terrorist use of WMD.

Project BG provides initiatives to locate, detect, defeat, and investigate the use of WMD against the U.S. and its allies, thereby protecting our citizens and critical infrastructures. The objective is to dissuade potential adversaries, whether they are nation states, terrorist groups, or criminal organizations, from using asymmetric means of war as a counter to U.S. conventional weapon superiority.

\*\* Tasking for this mission is contained in 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.

**B. Program Change Summary:**

(\$ in Millions)	FY 2007	FY 2008	FY 2009
<b>Previous President's Budget</b>	<b>218.946</b>	<b>0.000</b>	<b>0.000</b>
<b>Current President's Budget</b>	<b>214.702</b>	<b>0.000</b>	<b>0.000</b>
<b>Total Adjustments</b>	<b>-4.244</b>	<b>0.000</b>	<b>0.000</b>
<b>Congressional program reductions</b>			
<b>Congressional rescissions</b>			
<b>Congressional increases</b>			
<b>Reprogrammings</b>	<b>-0.994</b>		
<b>SBIR/STTR Transfer</b>	<b>-3.250</b>		

**Change Summary Explanation:** Not Applicable.

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

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**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> 0602716BR Project BC – Force Protection & Technology Apps.	

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project BC - Force Protection & Technology App.	0.592	0.000	0.000	0.000	0.000	0.000	0.000

\* Funding and activities realigned into Program Element (PE) 0302199BR in FY 2008.

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

This project develops assessment and mitigation technologies to conduct mission vulnerability assessments of strategic U.S./Allied systems leading to the development of investment strategies for improved survivability. This project ensures that assessment training programs, engineering designs, and new construction embody sound force protection, vulnerability mitigation, and collective protection principles. Project’s products and services include: Balanced Survivability Assessments; Vulnerability out-briefs and written reports; overall force protection vulnerability trend data; the National and North Atlantic Treaty Organization conferences for Underground Facility Managers; and Multi-disciplined technical engineering expertise support.

**B. Accomplishments/Planned Program:**

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009
Project BC - Force Protection & Technology App.	0.592	0.000	0.000

\*Funding and activities realigned into PE 0302199BR in FY 2008.

**Performance Metrics:**

- Fidelity of real-time information provided during on-site out-briefs, with a goal of 95%.
- Number of assessments completed, with a target of six per year.
- Timeliness and accuracy of follow-on written reports, with a goal of 90 days or less following completion of assessment.

**FY 2007 Accomplishments:**

- Conduct 12 balanced survivability and integrated, multi-discipline assessments of critical national/theater mission systems and defense and critical national infrastructure facilities as tasked by Office of the Secretary of Defense, Combatant Commands, and the Joint Staff. Conducted architectural analyses of the Army’s Force XXI Battle Command, Brigade and Below (Blue Force Tracking) and the Defense Information System Agency’s Request for Proposal of their new Headquarters facility, to determine systemic vulnerabilities.

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**FY 2008 Plans:**

- Not Applicable. See Program Element (PE) 0302199BR in FY 2008.

**FY 2009 Plans:**

- Not Applicable. See PE 0302199BR in FY 2008.

**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> 0602716BR Project BD – Weapons Effects Technologies	

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project BD - Weapons Effects Technologies	71.774	0.000	0.000	0.000	0.000	0.000	0.000

\* Funding and activities realigned into Projects RA, RG, RI, RL, RM and RU of Program Element (PE) 0602718BR and PE 0605000BR in FY 2008.

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

This project provides an over-arching framework for all Chemical, Biological, Radiological, Nuclear and High Explosive related modeling and simulation tools.

- Provides the warfighter and military engineers with state-of-the-art targeting support weapons effects models, structural dynamic models and computational tools for use in weaponeering, post strike assessment and force/mission protection. Develops, validates, and verifies lethality/vulnerability models and integrates those models into computational tools for expedient or deliberate pre-strike planning, post-strike assessment, intelligence analysis, and other related missions. Provide targeting support technology, tools and expertise in the areas of forensic analysis, vulnerability assessments and weapon/structure interactions in support of anti-terrorism and force protection missions.
- Provides nuclear weapon effects modeling and simulation, common DoD nuclear weapon stockpile and foreign nuclear weapon standard data handbooks for use in developing modeling and/or predictions of effects and subject matter expertise in nuclear weapon effects for joint DoD and Department of Energy nuclear studies and operational exercises.
- Develops an automated software system to provide the means to accurately predict the effects of hazardous material released into the atmosphere and its impact on civilian and military populations. The system uses integrated source terms, high-resolution weather forecasts and atmospheric transport & dispersion analyses to model hazard areas produced by military or terrorist incidents and industrial accidents.
- Capitalized on expertise developed through DoD, other U.S. government, and non-government supported research in various technologies to support, maintain and sustain the WMD technology base. Additionally, identified gaps in these capabilities and initiated programs to fill them.
- Provides validated modeling and simulation tools to enable rapid access for planning, emergency response and assessment capabilities across a broad spectrum of conventional, unconventional and nuclear scenarios. Significant initiatives focus on extending legacy and future capabilities through web-services and web-browser based delivery methods.
- Develops and validates Chemical and Biological Weapon defeat and disrupt weapon effectiveness and collateral release diagnostics for the warfighter to mitigate the impact of the effects of WMD on all aspects of warfighting, to include communications, radar and optical sensor systems.

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**B. Accomplishments/Planned Program:**

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009
Project BD - Weapons Effects Technologies	71.774	0.000	0.000

\*Funding and activities realigned into Projects RA, RG, RI, RL, RM and RU of Program Element (PE) 0602718BR and PE 0605000BR in FY 2008.

**Performance Metrics:**

- Number of software versions delivered to customer.
- Number of tests completed.
- Number of payloads developed.

**FY 2007 Accomplishments:**

- Initiated development of a directed energy centric Agent Deny/Disrupt payload supporting counterforce agent defeat, deny, disrupt.
- Began development of soft target agent defeat technologies supporting counterforce agent defeat, deny, disrupt.
- Delivered Integrated Munitions Effects Assessment this will incorporate architectural improvements and enhanced modeling techniques.
- Delivered Improved Ground Shock Vulnerability Number models used to assess vulnerability of deeply buried facilities.
- Integration of Hazard Prediction and Assessment Capability 5.0 into the Integrated Weapons of Mass Destruction Tool Kit (IWMDT) framework for development, and operational use of DTRA Science & Technology software.
- Completion and transition to operational capability of R&D framework IWMDT to the U.S. Strategic Command, Center for Combating WMD/Operations Center for real-time operational support.
- Initiated Phase III of Project Ancile to improve protection of critical infrastructure against WMD attacks.
- Conducted user orientation/training of Arms Control Enterprise System (ACES) Conventional Weapon module capability.
- Successfully completed the system Requirements Specification, System Architecture and Requirements allocation Description and Software Requirements Specification for development of the ACES strategic arms control capabilities.

**FY 2008 Plans:**

- Not Applicable. See Projects RA, RG, RI, RL, RM and RU of PE 0602718BR and PE 0605000BR in FY 2008.

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**FY 2009 Plans:**

- Not Applicable. See Projects RA, RG, RI, RL, RM and RU of PE 0602718BR and PE 0605000BR in FY 2008.

**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> 0602716BR Project BE – Testing Technologies and Integration

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project BE - Testing Technologies & Integration	15.819	0.000	0.000	0.000	0.000	0.000	0.000

\* Funding and activities realigned into Projects RA and RR of Program Element (PE) 0602718BR in FY 2008.

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

This project provides a unique national test bed capability for simulated WMD facilities characterization, weapon-target interaction, and WMD facilities 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. Fifty years of testing expertise is leveraged 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). This project maintains testing infrastructure to support the requirements of warfighters, other government agencies, and friendly foreign countries. It develops 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; and supports 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.

**B. Accomplishments/Planned Program:**

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009
Project BE - Testing Technologies & Integration	15.819	0.000	0.000

\*Funding and activities realigned into Projects RA and RR of PE 0602718BR 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 test activities that will undergo environmental assessment consistent with existing Environmental Impact Statements.

**FY 2007 Accomplishments:**

- Constructed a building for Test Operations Technology and Test Support, fabrication facility and Rotary Percussion Sounding System.

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- Thermal Radiation Simulator Site Closure.
- N-Tunnel Closure, T-Tunnel Closure and initiation of T-Tunnel Rad/Non-Rad clean-up (Nevada Test Site).
- Advanced Research Electromagnetic Simulator remediation was initiated and completed (Kirtland Air Force Base, NM).
- Magnetic flyer was environmentally remediated, restored, and returned to Kirtland Air Force Base, NM.
- Designed and acquired a mobile instrumentation capability that supports the large, medium, and phenomenology test beds at the Permanent High Explosive Test Site, located at the White Sands Missile Range, NM.
- Conducted an R&D experiment to facilitate enhanced parsing of high-speed camera video documentation to better discern plume phenomenology.
- Initiated acquisition of 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.
- Completed closure reports for seven sites and completed the first Historical Cultural Assessment Report (Nevada Test Site).

**FY 2008 Plans:**

- Not Applicable. See Projects RA and RR of Program Element (PE) 0602718BR in FY 2008.

**FY 2009 Plans:**

- Not Applicable. See Projects RA and RR of PE 0602718BR in FY 2008.

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

**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> 0602716BR Project BF - CP Operational Warfighter Support	

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project BF - CP Operational Warfighter Support	111.405	0.000	0.000	0.000	0.000	0.000	0.000

\* Funding and activities realigned into Projects RA, RG, and RM of Program Element (PE) 0602718BR, Project RT of PE 0603160BR, and PE 0303150BR and PE 0302199BR in FY 2008.

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

This project integrates technologies developed in other WMD defeat projects, to conduct a full spectrum of tests to verify capability enhancement, to expose customers to these capabilities in exercises, wargames and demonstrations, to integrate WMD defeat technologies into customer operations, and to support use of these capabilities during contingency operations.

Provides the warfighter with the capabilities and understanding for countering the use and effect of WMD and weapons of mass effects through the advancement of simulation technology, assessment of operational impact, development of collaborative capabilities and access to mature computer models. Provide an interface between DTRA model developers and the weapons effects simulation community to ensure relevance of DTRA models in interactive simulations through compliance with standards and protocols. Use advanced simulations to assist the warfighter in quantifiably assessing operational theater plans and post-attack warfighting effectiveness and to develop alternatives to mitigate the effects of WMD.

It develops advanced energetics and weapon concepts and technologies for tunnel defeat as recommended in the Hard & Deeply Buried Targets (HDBT) Science and Technology Master Plan; develops, demonstrates and transitions to the warfighter end-to-end capabilities to defeat HDBT. These capabilities embody synergistic effects of optimizing attack planning, the weapon and kill mechanism, and the tactics, techniques and procedures necessary to defeat a spectrum of HDBT. This supports warfighting requirements derived from the HDBT Initial Capabilities Document and RDT&E priorities set by the Office of the Under Secretary of Defense for Acquisition, Technology and Logistics.

Provides support to the Intelligence Community and the Combatant Commands by providing technologies and processes to find and characterize HDBT assess the results of attacks then against those targets.

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**B. Accomplishments/Planned Program:**

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009
Project BF - CP Operational Warfighter Support	111.405	0.000	0.000

\*Funding and activities realigned into Projects RA, RG and RM of Program Element (PE) 0602718BR, Project RT of PE 0603160BR, and PE 0303150BR and PE 0302199BR in FY 2008.

**Performance Metrics:**

- Number of large-scale tests completed.
- Number of target characterizations, 3-D target models and weaponeering solutions delivered to the Combatant Commanders and Intelligence Community in response to prioritized requirements.
- Percent increase of Counter WMD weapon performance compared to fielded weapons (e.g. Bomb, Live Unit (BLU)-109 and BLU-113).
- Number of targeting tools tested and delivered.

**FY 2007 Accomplishments:**

- Completed major repair and renovation of a large hardened bunker target to support weapon testing and weapon penetration model development and validation.
- Finalized design of the multi-story bunker test bed to support weapon testing and weapon penetration model development and validation.
- Conducted a full-scale lethality test of a statically emplaced Massive Ordnance Penetrator inside DTRA's Capitol Peak Tunnel Facility, White Sands Missile Range, NM.
- Conducted a full-scale in-tunnel lethality test of a statically emplaced incendiary weapon at the DTRA's Dugway Proving Ground, UT tunnel test bed.
- Began integration of sensor systems data into our software tools to facilitate target status assessment for warfighters.
- Initiated adding WMD threat research and analysis characterization and assessment capabilities to the Target Assessment Technologies project with initial capability in FY 2008.
- Continued Integrated Sensor System ground sensor requirements definition and began system design to provide near-real-time data feed for enhanced target characterization and prompt bomb damage assessment.
- Provided target weaponeering recommendations and models to Targeting / Weaponeering Assistance Cell.

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- Conducted full-size in-tunnel ordnance lethality tests at the DTRA Dugway Proving Ground tunnel test bed.
- Provided WMD expertise and modeling and simulation support during Noble Resolve 07, the first joint experiment co-sponsored by U.S. Northern Command, Homeland Security, and Joint Forces Command.
- Conducted a series of tabletop experiments examining the concerns surrounding “Loose Nukes”.
- Generated the Senior Leader Report on Combating WMD; identifying future requirements for Combating WMD experimentation in partnership with partnership with Combatant Commanders, and other members of the community of interest.
- Demonstrated enhanced WMD situational awareness, command and control, and continued innovation at the Coalition Warrior Interoperability Demonstration 2007 establishing requirements for future decision support tools.
- Developed and successfully tested an Improvised Explosive Device Electronic Signature Detection capability able to identify electronic emission as opposed to identifying the operational frequency of devices.

**FY 2008 Plans:**

- Not Applicable. See Projects RA, RG, and RM of Program Element (PE) 0602718BR, Project RT of PE 0603160BR, and PE 0303150BR and PE 0302199BR in FY 2008.

**FY 2009 Plans:**

- Not Applicable. See Projects RA, RG, and RM of PE 0602718BR, Project RT of PE 0603160BR, and PE 0303150BR and PE 0302199BR in FY 2008.

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

**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> 0602716BR Project BG – Nuclear Operations	

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Project BG - Nuclear Operations	15.112	0.000	0.000	0.000	0.000	0.000	0.000

\* Funding and activities realigned into Projects RF of Program Element (PE) 0603160BR in FY 2008.

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

This project conducts the research, development, test, and evaluation required to carry out the Agency’s specified and implied missions articulated in the National Military Strategy, the Nuclear Posture Review, the Quadrennial Defense Review, and those directed by the Joint Chiefs of Staff (JCS) in the Joint Strategic Capabilities Plan Nuclear Annex. It concurrently lays a foundation for potential transformation activities within the nuclear arena as identified in DoD's Transformation Planning Guidance.

It enhances deterrence and proactively supports the agency's mission of WMD threat reduction. The research and development is focused on adapting engineering and integrating current or new technologies into user -friendly instruments to meet the WMD threat. Initiatives supported by this project include, but are not limited to: integrating and applying new technological advances to improving capabilities for locating and detecting, and defeating and attributing, old and emerging WMD threats in both civilian and military areas (when possible or feasible, other government agencies’ expertise or technologies are leveraged, most notably the Department of Energy and the Domestic Nuclear Detection Office; conducting critical nuclear research, development, test and evaluation in support of the Combatant Commanders, Military Services, JCS and Office of the Secretary of Defense through the oversight and response to the direction of the Nuclear Weapons Council; assesses the continuously evolving Chemical, Biological, Radiological, Nuclear and High Explosives threat posed by old and new actors in the 21st Century.

**B. Accomplishments/Planned Program:**

Cost (\$ in Millions)	FY 2007	FY 2008	FY 2009
Project BG - Nuclear Operations	15.112	0.000	0.000

\*Funding and activities realigned into Projects RF of PE 0603160BR in FY 2008.

**Performance Metrics:**

- Number of successful flight tests completed.
- Number of products provided to Special Operations Forces customers.

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- Number of databases updated/enhanced.

**FY 2007 Accomplishments:**

- Maintained the Domestic Nuclear Event Attribution (DNEA) legacy thru monthly notification drills, quality assurance/quality control testing and successfully conducted three table top exercises and five field training exercises, the last being an external evaluation. The last field training exercise demonstrated a limited ground collection capability.
- Improved the ANDROS robot via several modifications to improve range and ability to perform improved sampling.
- Successful transitioned DNEA legacy lab support to Department of Energy.
- Enhanced/maintained the Sentry/Sniper databases. Expanded three-dimensional features to include real-time fly thru models. Integrated chemical and biological weapon information and a decision matrix into a comprehensive WMD database.
- Continued hardware and software improvements based on laboratory and user training sessions for the Hand Held Chemical Detector for Special Operations Forces.
- Began development at a library suite consisting of Chemical Warfare Agents, precursor, and Homemade Explosives.
- Developed equipment that is waterproof, shockproof and resistant to extreme conditions and sustained employment without significant operational degradation.
- Developed smaller, lighter-weight detection systems for more adverse field employment.

**FY 2008 Plans:**

- Not Applicable. See Projects RF of Program Element (PE) 0603160BR.

**FY 2009 Plans:**

- Not Applicable. See Projects RF of PE 0603160BR.

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

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

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