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Exhibit R-2a, RDT&E Project Justification							Date: February 2003	
Appropriation/Budget Activity RDT&E. Defense-wide BA 4				Project Name and Number Environmental Security Technology Certification Program (ESTCP) 0603851D8Z				
Cost (\$ in millions)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Environmental Security Technology Certification Program (ESTCP) 0603851D8Z	20.504	20.363	35.594	32.606	31.092	28.757	27.863	28.530
<p><b>Mission Description and Budget Item Justification:</b> This program demonstrates and validates the most promising innovative environmental technologies that target DoD's most urgent environmental needs and are projected to pay back the investment within five years through cost savings and improved efficiencies. It responds to: (1) congressional concern over the slow pace of remediation of environmentally polluted sites on military installations, (2) congressional direction to conduct demonstrations specifically focused on emerging new technologies, and (3) the need to improve defense readiness by reducing the drain on the Department's operation and maintenance dollars caused by real world commitments such as environmental restoration and waste management. Preference for demonstrations are given to technologies that have successfully completed all necessary research and development objectives, and address the highest priority DoD environmental requirements. Project funding supports the following categories for each year.</p>								
<b>B. Accomplishments/Planned Program</b>								
	FY 2002	FY 2003	FY 2004	FY 2005				
Accomplishment/ Effort/Subtotal Cost	20.504	20.363	35.594	32.606				
<p><b>FY 2002 Accomplishments:</b></p> <p>DoD invested FY2002 funds in projects that address priority DoD environmental requirements.</p> <ul style="list-style-type: none"> <li>- Review and award 23 technologies for demonstration.</li> <li>- Continue and completed 54 technology demonstrations.</li> </ul> <p>By Pillar:</p> <ul style="list-style-type: none"> <li>- Remediation: Successfully demonstrated and validated technologies in multiple high priority areas related to Cleanup of contaminated DoD sites. For example, ESTCP researchers have completed the successful demonstration of a technology that stabilizes metals using a natural and benign additive, which chemically binds the metals into stable, insoluble minerals. Allows for the cost-effective cleanup of DoD small arms ranges. Successfully developed and demonstrated a sediment sampling device to directly quantify the mobility and bioavailability of trace metals and organic contaminants in marine sediments and demonstrated the general applicability of bioaugmentation as an enhancement to traditional accelerated anaerobic biodegradation methodologies for the remediation of chlorinated solvents in groundwater. Successfully demonstrated and transitioned in-situ treatment technology for MTBE leading to cost savings of \$50 million at one installation. (\$6.221 million)</li> <li>- Unexploded Ordnance(UXO): Continued support of national test sites to support the test and evaluation of advanced UXO detection technologies. To address the challenge associated with locating UXO buried in high natural clutter environments, researchers have completed a demonstration of portable detection systems that will allow the collection and analysis of high-quality data at DoD ranges regardless of terrain or tree cover. To reduce false-positive rates for UXO detection methods, ESTCP researchers have initiated the demonstration of a combined electromagnetic and magnetometer data acquisition and processing system to improve ordnance characterization and the rejection of false targets. To address large area</li> </ul>								

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sites, ESTCP has demonstrated multiple airborne detection technologies. (\$4.397million)

- Pollution Prevention: Demonstrated and validated innovative technologies to reduce the use of hazardous materials and the reduction of air emissions from military coatings removal through the use of lasers. ESTCP researchers have made significant progress in the development and replacement of biodegradable and infrared de-icing/anti-icing alternatives for aircraft. Continued implementation of environmentally acceptable replacements of lead in small caliber ammunition and components. (\$6.594million)
- Compliance: Significant progress has been made in the development of waste treatment and environmental monitoring technologies required by DoD. These include, successful testing of models to assess and control blast noise emissions at military installations; completing construction of a wetlands to treat deicing fluids in runoff from an Air Force base; successful operational demonstration of a real-time above ground fuel storage tank leak detection and monitoring system; and successful demonstration of a digital alternative method to measure the opacity of smoke plumes emitted from DoD facilities. (2.645 million)

### **FY 2003 Program:**

- Reviewed and selected 25 technologies for demonstration.
  - Reviewed and selected sites for demonstration of technologies.
  - Prepared site-specific implementation plans
  - Prepared sites and secure regulatory permitting.
- Continued to demonstrate and evaluate 57 selected technologies. Of these 57 technologies 19 are to be completed.

### **By Pillar:**

- Remediation: Validate technologies and continue demonstrations in multiple high priority areas related to the Cleanup of contaminated DoD sites. For example, ESTCP researchers are continuing successful multi-site demonstration for cost-effective in-situ treatment for perchlorate. Technologies are projected to reduce future DoD cleanups by \$100s of millions. Complete evaluation of source treatment technology. Continued demonstrations of in-situ treatment for energetic materials used in explosives. (\$6.464 million)
- Unexploded Ordnance: ESTCP researchers are continuing development and testing of new software systems to reduce false alarm rates. New signal processing algorithms may reduce cleanup costs by 50% at many sites. Complete validation of airborne UXO systems. Initiated demonstration of mechanical clearance technology. Complete validation of man-portable UXO sensor technologies, which will have a significant impact on the DoD UXO remediation efforts. (\$4.551 million)
- Pollution Prevention: ESTCP continues to validate and transition environmentally clean technologies that directly support the military mission. Examples include demonstration of a new combustor design for DoD aircraft with reduced emissions, demonstration of lead free primers for munitions, and complete demonstrations of environmentally friendly alternative for hard chrome plating for a wide variety of weapon system components and environmentally benign paint stripping technologies. (\$6.537 million)
- Compliance: Significant progress has been made in the development of waste treatment and environmental monitoring technologies required by DoD to ensure DoD facilities and ranges are in compliance. These include, testing of treatment system for oily waste; demonstration of grenade range maintenance technology, and air monitoring technologies. (\$2.811 million)

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The FY2004 funds will be invested in projects that address priority DoD environmental requirements. The focus of the program is on UXO cleanup, range sustainment and pollution prevention required for DoD weapon systems. Funds are primarily required to continue ongoing investments.

- Continue 63 ongoing demonstration projects
- Review and select technologies for demonstration.
  - Review and select sites for demonstration of technologies.
  - Prepare site-specific implementation plans
  - Prepare sites and secure regulatory permitting
- Award demonstration testing and evaluation for selected technologies.

By Pillar:

- Remediation: (\$9.059 million)
- UXO: (\$11.126 million)
- Pollution Prevention: (\$9.878 million)
- Compliance: (\$5.531 million)

**FY 2005 Plans:**

- Review and select technologies for demonstration.
- Review and select sites for demonstration of technologies.
- Prepare site-specific implementation plans
- Prepare sites and secure regulatory permitting
- Award demonstration testing and evaluation for selected technologies.

By Pillar:

- Remediation: (\$8.060 million)
- UXO: (\$10.336 million)
- Pollution Prevention: (\$9.107 million)
- Compliance: (\$5.103 million)

**FY 2006-09 Plans:** The ESTCP will continue to program and budget for the most promising innovative environmental technologies that target DoD's most urgent environmental needs and are projected to pay back the investment within five years.

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**C. Other Program Funding Summary:**

Related RDT&E

- D. Acquisition Strategy.** ESTCP solicits proposals from all DoD organizations and competes them with a multi-agency review panel. In Cleanup and UXO, ESTCP solicits proposals from other Federal Agencies and the commercial sector as well. These are also competed using review panels.

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