

UNCLASSIFIED

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE February 1999		
BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0708045A Army Industrial Preparedness Manufacturing Technology						
COST (In Thousands)	FY1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	60044	52501	66167	66306	67254	70511	68834	70595	Continuing	Continuing
DE25 Manufacturing Science & Technology (ManTech)	30711	36607	14895	15491	17075	20716	23039	23866	Continuing	Continuing
DE26 Weapon Systems Modernization Software Maintenance	29333	0	0	0	0	0	0	0	0	29333
DE27 Reliability, Maintainability and Sustainability (RM&S)	0	10927	15754	15401	14957	14602	14902	15205	Continuing	Continuing
DE31 National Defense Center for Environmental Excellence (NDCEE)	0	4967	4932	4927	4922	4920	0	0	0	24668
DE32 Commercial Operations and Support Savings Initiative (COSSI)	0	0	30586	30487	30300	30273	30893	31524	Continuing	Continuing

A. Mission Description and Budget Item Justification: This program element comprises five projects: Manufacturing Technology (ManTech); Weapon Systems Modernization Software Maintenance; Reliability, Maintainability and Sustainability (RM&S); the National Defense Center for Environmental Excellence (NDCEE); and Commercial Operations and Support Savings Initiative (COSSI). The goal of the Army ManTech program is to provide essential manufacturing technologies that will enable affordable production and sustainment of future weapon systems. Objectives include development of advanced manufacturing processes, equipment and systems; enhancement in quality while achieving reduction in cost of Army materiel; and transferring improved manufacturing technologies to the industrial base. The ManTech program is especially important in the current environment because of the large decline in weapon system production investments. Most manufacturing technology was formerly accomplished within individual production programs. Projects selected to be funded under this program have the potential for high payoff across the spectrum of Army weapon systems as well as significant impact on national manufacturing issues and the U.S. industrial base. The Weapon Systems Modernization Software Maintenance project provides funding for modernization programs in which post-production embedded weapon system software must be upgraded and/or enhanced, as well as life cycle software engineering in the areas of tactical and satellite communications, intelligence and electronic warfare (IEW), avionics command and control (C2), fire support (FS), maneuver control (MC), and tactical fusion (TF). The Reliability, Maintainability and Sustainability (RM&S) program funds projects that reduce cost through reliability, maintainability or other improvements to fielded weapons systems and/or major end items. RM&S was funded in fiscal year 1997 under the Other Procurement, Army appropriation. Funding was eliminated by Congress in fiscal year 1998 because projects appeared to be research and development rather than depot maintenance. For fiscal year 1999 and out-years, funding is transferred to this PE. The National Defense Center for Environmental Excellence (NDCEE) is a Congressionally directed

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<p>project which has the mission to demonstrate and export new environmentally-acceptable technology to the industrial base; train the industrial base on the use of the new technology;</p> <p>perform research and development, where necessary, to mature a new technology prior to demonstrating and exporting the new technology to the industrial base; and assist DoD in technology transfer. The Center's goal is to resolve the environmental technology and management requirements of the DoD community and commercial industrial base. The commercial operations and support savings initiative (COSSI) will be funded under this program element beginning in FY 2000. The mission of the COSSI program is to reduce operations and support costs by developing, testing, and implementing a method to insert commercial items into fielded military systems on a routine and expedited basis.</p>																																																									
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">B. Program Change Summary</th> <th style="text-align: center;"><u>FY 1998</u></th> <th style="text-align: center;"><u>FY 1999</u></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> </tr> </thead> <tbody> <tr> <td>Previous President's Budget (FY 1999 PB)</td> <td style="text-align: center;">64278</td> <td style="text-align: center;">30511</td> <td style="text-align: center;">31487</td> <td style="text-align: center;">31759</td> </tr> <tr> <td>Appropriated Value</td> <td style="text-align: center;">66326</td> <td style="text-align: center;">52861</td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>a. Congressional General Reductions</td> <td style="text-align: center;">-2048</td> <td style="text-align: center;">-360</td> <td></td> <td></td> </tr> <tr> <td>b. SBIR / STTR</td> <td style="text-align: center;">-1611</td> <td></td> <td></td> <td></td> </tr> <tr> <td>c. Omnibus or Other Above Threshold Reductions</td> <td style="text-align: center;">-532</td> <td></td> <td></td> <td></td> </tr> <tr> <td>d. Below Threshold Reprogramming</td> <td style="text-align: center;">-2091</td> <td></td> <td></td> <td></td> </tr> <tr> <td>e. Rescissions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Adjustments to Budget Years Since <u>FY 1999 PB</u></td> <td></td> <td></td> <td style="text-align: center;">+34680</td> <td style="text-align: center;">+34547</td> </tr> <tr> <td>Current Budget Submit (FY 2000 / 2001 PB)</td> <td style="text-align: center;">60044</td> <td style="text-align: center;">52501</td> <td style="text-align: center;">66167</td> <td style="text-align: center;">66306</td> </tr> </tbody> </table>			B. Program Change Summary	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	Previous President's Budget (FY 1999 PB)	64278	30511	31487	31759	Appropriated Value	66326	52861			Adjustments to Appropriated Value					a. Congressional General Reductions	-2048	-360			b. SBIR / STTR	-1611				c. Omnibus or Other Above Threshold Reductions	-532				d. Below Threshold Reprogramming	-2091				e. Rescissions					Adjustments to Budget Years Since <u>FY 1999 PB</u>			+34680	+34547	Current Budget Submit (FY 2000 / 2001 PB)	60044	52501	66167	66306
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<p>Change Summary Explanation: Appropriated value in FY 1999 reflects Congressional add (+22350). RM&S and NDCEE were transferred to PE 0708045A from other Army accounts starting in FY1999. Also, COSSI was transferred from PE 0604824A to PE 0708045A starting in FY2000. The cumulative transfer effect of these three programs accounts for most of the change in FY2000 and FY2001.</p>																																																									

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BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0708045A Army Industrial Preparedness Manufacturing Technology				PROJECT DE25		
COST (In Thousands)	FY1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
DE25 Manufacturing Science & Technology (ManTech)	30711	36607	14895	15491	17075	20716	23039	23866	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> The goal of the Army Manufacturing Science & Technology (ManTech) Program is to provide essential manufacturing technologies that will enable the affordable production and sustainment of future weapon systems. Objectives include development of advanced manufacturing processes, equipment and systems; enhancement in quality while achieving reduction in cost of Army materiel; and transferring improved manufacturing technologies to the industrial base. The ManTech program is especially important in the current environment because of the large decline in weapon system production investments since most manufacturing technology was formerly accomplished within individual production programs. Projects selected to be funded under this program have the potential for high payoff across the spectrum of Army weapon systems as well as significant impact on national manufacturing issues and the U.S. industrial base.</p> <p>FY 1998 Accomplishments:</p> <ul style="list-style-type: none"> • 1000 Initiated the first phase of a five year major effort to develop manufacturing technologies required for cooled and uncooled infrared staring sensors by developing processes for uncooled 288x384 focal plane arrays. . • 125 Ground Vehicles: A Titanium welded box design was tested against ballistic threats at ARL Weapon Technology Directorate at Aberdeen Proving Grounds. This test quantified weld failure mechanisms for thick section titanium welds. • 3910 Air Vehicles: For the Instrumented Factory for Gears, continued development of improved heat treatment processing, conducted final demonstration of prediction and control of heat treatment distortion of gears, demonstrated automated deburring of spiral bevel gears and demonstrated digital optical-based inspection system for gears; continued development and demonstration of improved airframe manufacturing technology using advanced composite manufacturing processes for helicopter primary structures; successfully completed first phase of improved rotary wing aircraft sustainment with focused efforts on three processing areas to include remanufacturing of rotor blades, and static balance fixture for CH-47 and UH-60 main rotor blade leading edge surfaces at Corpus Christi Army Depot. • 17093 Munitions: Continued processing technology development for pyrotechnic materials, optimized process parameters for manufacture of fine particle explosives and coated energetics, and completed process development efforts for Modular Artillery Charge System (MACS); continued manufacturing development of the Objective Individual Combat Weapon System; prototyped and proved out a second generation Computer Numerically Coded (CNC) machine for Magnetorheological Finishing (MRF) of optics and precise correction of non-symmetric errors; accelerated munitions manufacturing technology in the areas of composites, electronics and energetics; organized the demonstration plan for totally integrated munitions engineering through process scheduling and shop floor management tools. 										
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<p>FY 1998 Accomplishments: (continued)</p> <ul style="list-style-type: none"> • 6235 Missiles: Developed and implemented Computer-Aided Design/Computer-Aided Engineering (CAD/CAE) millimeter-wave (MMW) design tools and demonstrated manufacturing improvements for MMW transceivers on the Longbow missile transceiver; completed development of manufacturing process/testing improvements for multi-chip modules and produced a microjet cooling device for compact, high-density microelectronics through participation in the Ga. Tech. Packaging Research Center; completed development of advanced tools for missiles; demonstrated flexible production of PAN based, ultra high modulus, high strength carbon fibers for light weight, high performance, and stealthy structural applications; and continued cost reduction process improvements for traveling wave tube manufacturing; baselined processes and initiated process development for the manufacture of filters within the master frequency generator for the Patriot PAC-3 system; initiated the first phase in the establishment of a circuit board center for the strengthening of the U.S. Printed Circuit Board (PCB) Industrial Base and its ability to support military needs through an integrated program of research, education, and industrial extension. Began manufacturing research efforts in low cost PCB interconnections, high density micro-via registration, PCB substrates for direct chip attachment, multi-layer board compensation factors, and advanced frequency operation PCB. • 350 Electronics: Completed demonstration of linear drive coolers used in 2nd generation forward looking infra-red horizontal technology integration, reducing cooler production cycle time by over 70% for systems to include Javelin, Abrams, and Comanche. • 1998 Materiel and Support Systems: Demonstrated remanufacturing capabilities using robotic welding; established improved methodology for producing semi-dry rations for the warfighter; completed first phase of reverse engineering system for the manufacturing of printed wiring boards at Tobyhanna Army Depot; Implemented a High Velocity Oxygenated Fuel Spray metallizing spray system that replaces hard chrome coatings for selected components at Anniston Army Depot. <p>Total 30711</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 1000 For the cooled and uncooled staring sensors manufacturing technology objective, demonstrate 35% yield for 288 x 460 uncooled monolithic focal plane arrays with reduced pixel size and improved vacuum packaging; initiate manufacturing process improvement in integration controls and testing of cooled focal plane arrays. • 1700 For the manufacturing technology objective to develop Plastic Encapsulated Microcircuits Coatings for military applications, investigate and select coating material and develop coating application process for selected material. The coatings will be used during manufacturing of military application integrated circuits subjected to long term unpowered missile storage environments, and are projected to increase the yield by 5%. 		
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<ul style="list-style-type: none"> • 3500 Automate pre-form technologies for Crusader, determine process capabilities through simulation of Comanche, and develop non-proprietary cost models and process models for thin section resin transfer moldings for the manufacturing technology objective focusing on knowledge and process tools for manufacturing affordable composite structures. Directly address the need for process risk reduction and technology deployment in design, analysis, intelligent processing such as continuously fused sensors, modeling, control algorithm data, and shop floor practices. The goal of this manufacturing technology objective is to reduce costs 30% by simplifying assembly operations through an increased use of bonding versus costly mechanical fasteners and by using analysis tools to reduce part count while making the overall structure more efficient. <p>FY 1999 Planned Program: (continued)</p> <ul style="list-style-type: none"> • 4000 Air Vehicles: Continue instrumented factory for gears to transition advanced development and manufacturing processes to industry. • 600 Ground Vehicles: Demonstrate a titanium gun mount and cradle for the Crusader vehicle to include weldments, automated/laser welding, low cost castings and forgings, and battle damage repair. • 4800 Missiles: Demonstrate Computer Aided Design and Computer Aided Engineering tools for Millimeter Wave transceivers and fabricate, integrate, assemble, and test five Longbow Cost Reduction Program Integrated Product and Process Design (IPPD) transceivers on the flexible work cell pilot production line; demonstrate 5X reduction in multichip module substrate and assembly cost through participation in Georgia Tech Packaging Research Center, and insert smart FPA and dual-color technology into Stinger Block II missile production; implementation testbeds will be extended to demonstrate advanced integrated process team tools to the missile sector; complete and demonstrate the development of the new manufacturing processes and work cells for the manufacturing of Patriot PAC-3 traveling wave tubes; complete and demonstrate methods for the manufacture of filters within the master frequency generator for the Patriot PAC-3 system; continue development of advance manufacturing processes for printed circuit boards and develop industry, academia and government partnerships to demonstrate technology. • 18260 Munitions: Demonstrate technology to minimize seasonal variations of the solvent and thermal content of the propellant blocks, providing for more uniform products, greater yields and less rework; demonstrate advanced finishing processes for optics components; as part of totally integrated munitions enterprise, address issues in controllers, system architecture, electronics, composites energetics, OICW Tungsten Warhead, M829E3 processes, combustible cartridges and XM982 rotating band processing for accelerated munitions MANTECH insertion. • 1843 Materiel and Support Systems: Complete process optimization and demonstrate manufacturing capability for decontamination enzymes; develop digital data extraction technology and an automated reverse engineering fixture for remanufacturing capability of printed circuit boards; assess printed wiring board technologies at Tobyhanna Army Depot and develop a demonstration rapid response manufacturing system for small quantity production of a wide variety of boards; complete ceramic body armor assembly process for next generation body armor; develop large scale process parameters of bulk ceramics for the manufacturing of electronic scanning antennas. • 904 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.. <p>Total 36607</p> <p>FY 2000 Planned Program:</p>		
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<ul style="list-style-type: none"> • 1840 Demonstrate modeling process for increased performance and decreased cost of Crusader and Abrams weapon system gun barrels to meet a tantalum sputtering manufacturing technology objective. The goal is to increase barrel life by 800%. • 3000 Develop the manufacturing technologies required to meet the manufacturing technology objective for cooled and uncooled infrared staring sensors. Improvements in processes for 480x640 mid-wave and long-wave infrared focal plane arrays will reduce size, weight and costs to manufacture. • 3100 Demonstrate models for optimal fabrication, closed loop cure process control, and resin flow simulation accuracy to ultimately reduce labor costs by 30% for selected components of Comanche, Apache, Crusader and munitions in support of the manufacturing technology objective focusing on knowledge and process tools for manufacturing affordable composite structures. <p>FY 2000 Planned Program: (continued)</p> <ul style="list-style-type: none"> • 2100 Development of coating process that will be used during manufacturing of military application integrated circuits subjected to long term unpowered storage environments common to missiles, and increasing the manufacturing yield by 5% in support of this manufacturing technology objective for plastic encapsulated microcircuits. • 1000 Munitions: Develop initial components and processes for low cost detectors and optics for the precision guided mortar munition to reduce costs by 40% for all laser detectors. • 3855 Materiel and Support Systems: Demonstrate prototype large bulk ceramics and supporting components of X-band phase shifters for the manufacture of electronic scanning antennas on the Firefinder weapon system to reduce size of radar by a factor of 5 with a 50% weight reduction; demonstrate rapid response system for the reverse engineering of printed wiring boards at Tobyhanna Army Depot; complete cost reduction process enhancements for the manufacturing of ceramic plates used in next generation body armor. <p>Total 14895</p> <p>FY 2001 Planned Program:</p> <ul style="list-style-type: none"> • 3000 Demonstrate increased performance and decreased cost of Crusader and Abrams weapon system gun barrels with specific subtasks to include the manufacture and installation of sputtering targets and development of manufacturing processes for 120mm gun barrels in support of the manufacturing technology objective in tantalum sputtering. • 3000 Fabricate and integrate 480x640 mid-wave infrared and long-wave infrared focal plane array and dewar to achieve the manufacturing technology objective focused on cooled and uncooled infrared staring sensors. Weapon systems impacted include the Javelin seeker, drivers vision enhancer, thermal weapon sights, and future combat vehicles. • 2900 Implement investment strategy for risk reduction, knowledge base development, and tooling for the manufacturing technology objective in knowledge and process tools for manufacturing affordable composite structures. The objective is to reduce cost and time to manufacture large scale composite components for rotary wing vehicles, ground vehicles and munitions to ultimately reduce labor costs by 30%. • 2000 Insert special coated integrated circuits into selected military systems for demonstration and validation in support of the manufacturing technology objective in plastic encapsulated microcircuits. Technology targets weapon systems subjected to long term unpowered storage environments common to missiles. Demonstrate a 78% improvement in resistance to internal corrosion and improve fabrication and packaging yields by 5%. 		
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		PROJECT DE25
•	1000	Missiles: Establish the basis for the elimination of the hermeticity requirement and select more available coating technologies on the sensor systems of submunitions through design for manufacturing and assembly tools.
•	1400	Munitions: Demonstrate a simplified overall optical seeker sensor design for the precision guided mortar munition; demonstrate the manufacturing capability to make aspheric lenses affordable for military optical systems through process development and machine demonstration and transfer technology to industry; develop automated shaped charge linear manufacturing loading technology to reduce acquisition cost as well as improve safety and munition quality.
FY 2001 Planned Program: (continued)		
•	2191	Materiel and Support Systems: Complete manufacturing demonstration of electronic scanning antennas on firefinder radar and transfer technology to other potential application such as Comanche; demonstrate advanced electronics processing and fabrication, advanced welding and metals processing technology for weapons systems.
Total	15491	

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COST <i>(In Thousands)</i>	FY1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
DE26 Weapon Systems Modernization Software Maintenance	29333	0	0	0	0	0	0	0	0	29333

A. Mission Description and Justification: The Weapon Systems Modernization Software Maintenance project provides funding for modernization efforts in which post-production embedded weapon system software must be upgraded and/or enhanced. This project provides life cycle software engineering support for weapon systems in the areas of tactical and satellite communications, intelligence and electronic warfare (IEW), avionics command and control (C2), fire support (FS), maneuver control (MC), and tactical fusion (TF). The project provides the capability to enhance or improve system software interoperability, integration and testing for command, control, communications, computer, intelligence, electronic warfare, and sensor (C4IEWS) functions in a continuous life cycle evaluation/certification process. Software changes funded under this project expand or upgrade the performance of the selected weapon systems, as well as ensure system interoperability. The project is managed by the Army Materiel Command (AMC). Prior to FY1998 the work performed in project DE26 was funded in the Operations and Maintenance, Army appropriation. The mission and associated funding for all software maintenance that provides performance enhancements and upgrades to weapons systems were transferred to the RDT&E, Army appropriation in FY 1998. Beginning in FY1999, the funding for DE26 was distributed into the appropriate RDT&E accounts of those specific systems requiring performance enhancements and upgrades in software.

FY 1998 Accomplishments:

- 29333 -Modified fire support command and control system software to accommodate new munitions and/or doctrine.
 - Modified navigation and position reporting weapon system software to accommodate changes in mapping reference grids supplied by the National Imagery and Mapping Agency (NIMA).
 - Modified terrain dependent weapon system software platforms to accommodate changes in electronic terrain data supplied by the NIMA.
 - Modified software and/or databases in selected weapons systems to identify and defeat new, different, or re-deployed electronic threats employed by adversaries in particular regions of the world, such as laser or radar engagement systems used by enemy munitions and missiles, or communications jammers.
 - Modified weapon system application software in existing systems to accommodate upgrades of Commercial Off-The-Shelf (COTS) products required by obsolescence of older products no longer supported by vendors. Accommodated upgrades of COTS to ensure continuation of COTS vendor maintenance contracts necessary to sustain weapon system reliability.
 - Modified weapon system software as required to ensure integrity of operations when the systems are re-deployed to new and unfamiliar or unanticipated regions of the world in which the original software and data was not designed to operate.
 - Modified weapon systems software to accommodate interfaces with new and/or re-deployed NATO and Allied systems.

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<p>- Modified weapon systems software to accommodate short term critical user needs to increase capability and/or lethality required to meet operational mission needs and combat readiness.</p> <p>FY 1998 Accomplishments: (continued)</p> <ul style="list-style-type: none">- Incorporated weapon systems software enhancements which will provide the ability to manage data exchange between planning, monitoring and controlling subsystems, and which will provide a common integrated Man-Machine Interface (MMI) spanning these subsystems to achieve desired level of interoperability.- Modernized, and/or developed new software interfaces between weapon system platforms to accommodate or improve interoperability for force multiplication; installed and demonstrated new capabilities as required.- Incorporated weapon systems software enhancements which will provide the ability to manage data exchange between planning, monitoring and controlling subsystems, and which will provide a common integrated Man-Machine Interface (MMI) spanning these subsystems to achieve desired level of interoperability.- Incorporated enhancements into selected weapon systems software that will provide the ability to communicate information over secure network environments and increase the capability of existing secure communications links.- Modified Commander Tact Terminal, Air ReconLow, EPLARS, JTIDS, and Army Integration Network (AIN). <p>Total 29333</p> <p>FY 1999 Planned Program: Project not funded in FY 1999.</p> <p>FY 2000 Planned Program: Project not funded in FY 2000</p> <p>FY 2001 Planned Program: Project not funded in FY 2001</p>		
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COST (In Thousands)	FY1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
DE27 Reliability, Maintainability and Sustainability (RM&S)	0	10927	15754	15401	14957	14602	14902	15205	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> The Reliability, Maintainability and Sustainability (RM&S) program funds projects that reduce the cost of ownership through weapon system or equipment modifications to yield improvements in RM&S. Projects are evaluated for funding based on recognized principles of economic analysis, including principally the use of Savings-to-Investment analysis.</p> <p>FY 1998 Accomplishments: RM&S program previously funded in the Other Procurement, Army appropriation.</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 8900 Develop a CH-47 Chinook helicopter rotor hub with a new composite structure hub utilizing elastomeric bearing design features previously demonstrated on the Boeing-Vertol 360. The new hub will have 75% fewer parts with a corresponding reduction in special tooling. • 1738 Redesign the Avenger Remote Control Unit System and Cable to improve the reliability and survivability, and replace the current cable and connector with more reliable and less bulky fiber optic cable; redesign other components of the Avenger that have high maintenance to include the remote charger and feed chute. • 289 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.. <p>Total 10927</p> <p>FY 2000 Planned Program:</p> <ul style="list-style-type: none"> • 6685 Complete CH-47 dry rotor hub design and conduct qualification and flight testing. • 650 Demonstrate an automated preventive and predictive maintenance expert system focused on whirl towers, engine and transmission test cells and automatic test equipment for UH-60 and CH-47 components; demonstrate universal static balance system for helicopter rotor blades to include AH-64, UH-60, CH-47, UH-1, AH-1 and OH-58 which will reduce cycle times by 15%. • 4400 Demonstrate improved sealed lead-acid battery technology for the UH-60 helicopter to increase battery reliability and decrease operations and support costs. • 4000 Improve the collar reliability in the SADA II linear drive technology. This life cycle improvement will decrease the number of failures, thus reducing O&S costs. • 19 Identify and investigate high failure rate for fuel pressure switch 5930-00771-8119. Evaluate design and failure mode, and test to effect corrective action. This effort will reduce O&S costs and increase readiness. <p>Total 15754</p> <p>Project DE27</p>										

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COST (In Thousands)		FY1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
DE31	National Defense Center for Environmental Excellence (NDCEE)	0	4967	4932	4927	4922	4920	0	0	0	24668
<p>A. <u>Mission Description and Justification:</u> This Congressionally mandated project is managed by the Army on behalf of the Office of the Deputy Under Secretary of Defense for Environmental Security (DUSD-ES). The mission of the NDCEE is four-fold: (1) Demonstrate and export new environmentally-acceptable technology to the industrial base; (2) train the industrial base on the use of the new technology; (3) perform research and development, where necessary, to mature a new technology prior to demonstrating and exporting the new technology to the industrial base and (4) assist DoD in technology transfer. The NDCEE, which is located in Johnstown, Pennsylvania, has the goal of resolving the environmental technology and management requirements of the DoD community and commercial industrial base. The primary in-house development agency is the U.S. Army Materiel Command's Armament Research, Development, and Engineering Center, Picatinny Arsenal, NJ.</p> <p>The NDCEE has positioned itself as a critical resource for the Deputy Under Secretary of Defense for Environmental Security for environmental management and technology validation and integration. Major programs supported by the Center include the Joint Group on Acquisition Pollution Prevention, Toxics Reduction Investment & Management (TRIM), environmental cost accounting standards development supporting the DOD sustainment community and the DoD fuel cell program.</p> <p>FY 1998 Accomplishments: Program funded in PE0602720A.</p> <p>FY 1999 Planned Program:</p> <ul style="list-style-type: none"> • 4836 - Support the needs of Army/DOD pollution prevention. Assist Joint Logistic Commanders in use of Joint Group for Acquisition Pollution Prevention (JG-APP) methodology to aid depots. <ul style="list-style-type: none"> - Maintain Environmental Technology Facility and continue demonstration of environmentally acceptable technologies on DOD components and conduct of technology transfer activities (requirements determination, technology selection, equipment selection, installation, de-bugging, training) for DoD facilities. - Support pollution prevention efforts in acquisition through development of joint test protocols, multi-service needs identification, regulatory analysis and prediction, environmental cost analyses, risk assessments, life cycle environmental assessments and incorporation of environmental management standards and principles. • 131 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs.. <p>Total 4967</p>											
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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)		DATE February 1999
BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0708045A Army Industrial Preparedness Manufacturing Technology	PROJECT DE31
<p>FY 2000 Planned Program:</p> <ul style="list-style-type: none"> • 4932 - Support the needs of Army/DOD pollution prevention. <ul style="list-style-type: none"> - Maintain the Environmental Technology Facility. - Support Pollution Prevention efforts in acquisition. - Increase emphasis and market penetration in energy conservation and management focusing on fuel cell applications. - Expand capabilities in corrosion protection through surface modification technologies in support of the services and DOD. - Increase capabilities in Brownfield remediation and management. - Increase emphasis on biotechnologies such as phyto-remediation in support of Army needs. <p>Total 4932</p> <p>FY 2001 Planned Program:</p> <ul style="list-style-type: none"> • 4927 - Support the needs of Army/DOD pollution prevention. <ul style="list-style-type: none"> - Maintain Environmental Technology Facility and continue demonstration of environmentally acceptable technologies. - Support pollution prevention efforts in acquisition. - Evaluate and transition as appropriate sustainable manufacturing technologies such as structural composite materials produced from renewable sources. - Increase capabilities in modeling using existing capabilities in visualization and 3D modeling. - Investigate and transition next generation finishing and coatings removal technologies. - Increase emphasis on water treatment and DOD-specific waste stream recovery and treatment. <p>Total 4927</p>		
Project DE31	<i>Page 13 of 15 Pages</i>	Exhibit R-2A (PE 0708045A)

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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)								DATE February 1999		
BUDGET ACTIVITY 7 - Operational System Development				PE NUMBER AND TITLE 0708045A Army Industrial Preparedness Manufacturing Technology				PROJECT DE32		
COST (In Thousands)	FY1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
DE32 Commercial Operations and Support Savings Initiative (COSSI)	0	0	30586	30487	30300	30273	30893	31524	Continuing	Continuing
<p>A. <u>Mission Description and Justification:</u> The mission of Commercial Operations and Support Savings Initiative (COSSI) is to develop and test a method for reducing Army Operations and Support (O&S) costs by routinely inserting commercial items into fielded military systems. The insertion of commercial items is expected to reduce O&S costs by reducing the costs of parts and maintenance, reducing the need for specialized equipment, increasing reliability, and increasing the efficiency of subsystems. Selected proposals will develop, manufacture, and deliver prototype "kits" to the military for installation into fielded Army systems. COSSI is a two-stage process. In Stage 1 of each selected project, COSSI and the chosen proposer will share the costs of developing and testing the kit, with the proposer contributing at least 25% of the estimated costs of Stage I. If Stage I is successful, Stage II will be initiated. In Stage II, the military customer may then purchase reasonable production quantities of the kit. COSSI was funded in DOD PE 0603805E through FY1998, transferred to Army PE 0604824A in FY1999, and will be transferred to this PE in FY2000.</p> <p>FY 1998 Accomplishments: Program funded in DoD PE 0603805E.</p> <p>FY 1999 Planned Program: Program funded in Army PE 0604824A.</p> <p>FY 2000 Planned Program: FY 2000 funding will be for new Stage I COSSI projects. Some examples of possible Stage I efforts are improved inspection/testing techniques, information processing and distribution, automated software change distribution, automated condition assessment and reporting, inventory tracking/asset visibility, interactive electronic technical manuals, embedded training/distance learning, component refurbishing techniques, equipment power reduction, calibration and measurement techniques, modeling and simulation, and voice activation.</p> <ul style="list-style-type: none"> • 30586 Develop, manufacture and deliver cost savings initiatives in the area of product re-engineering. Develop, manufacture and deliver cost savings initiatives in the area of information technology. Develop, manufacture and deliver cost savings initiatives in the area of training. Develop, manufacture and deliver cost savings initiatives in the area of automation. Develop, manufacture and deliver cost savings initiatives in the area of rapid prototyping for spares. <p>Total 30586</p>										
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ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)		DATE
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
7 - Operational System Development	0708045A Army Industrial Preparedness Manufacturing Technology	DE32
<p>FY 2001 Planned Program: FY 2001 funding will be for new Stage I COSSI projects. Some examples of possible Stage I efforts are improved inspection/testing techniques, information processing and distribution, automated software change distribution, automated condition assessment and reporting, inventory tracking/asset visibility, interactive electronic technical manuals, embedded training/distance learning, component refurbishing techniques, equipment power reduction, calibration and measurement techniques, modeling and simulation, and voice activation.</p> <ul style="list-style-type: none">• 30487 Develop, manufacture and deliver cost savings initiatives in the area of product re-engineering. Develop, manufacture and deliver cost savings initiatives in the area of information technology. Develop, manufacture and deliver cost savings initiatives in the area of training. Develop, manufacture and deliver cost savings initiatives in the area of automation. Develop, manufacture and deliver cost savings initiatives in the area of rapid prototyping for spares. <p>Total 30487</p>		
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