RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									JUNE 2001	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/BA 3							**R-1 ITEM NOMENCLATURE** SO/LIC Advanced Development **PE 0603121D8Z**			
COST *(In Millions)*	FY2000	FY2001	FY2002						Cost to Complete	Total Cost
Total Program Element (PE) Cost	0.000	8.543	8.799						Continuing	Continuing
Explosive Ordnance Disposal/Low Intensity Conflict/P206	0.000	7.317	7.486						Continuing	Continuing
Special Operations/Low Intensity Conflict (SO/LIC)/P205	0.000	1.226	1.313						Continuing	Continuing
Alternatives to Antipersonnel Landmines/P121	0.000	0.000	0.000						Continuing	Continuing

(U) A. Mission Description and Budget Item Justification

(U) BRIEF DESCRIPTION OF ELEMENT

(U) P121, Alternatives to Anti-personnel Landmines (APL). This project develops, tests, and evaluates area denial systems to replace anti-personnel landmines (APL). APL alternatives include surveillance systems, command and control systems, and overwatch fires which were evaluated and developed in parallel. Nonlethal technologies will also be evaluated for applicability. During the first phase, various concepts will be defined in detail and examined with emphasis placed on leveraging existing programs. A process to select viable alternatives for further development was conducted using modeling and simulation along with advanced warfighting experiments. The selected approaches will enter prototype development. Further selection of viable concepts will enter the engineering and manufacturing development phase.

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(U) P205, Special Operations/Low-Intensity Conflict (SO/LIC) Analytical Support. The SO/LIC Analytical Support project provides specialized research and analytical support for the Assistant Secretary of Defense for Special Operations and Low- Intensity Conflict (ASD (SO/LIC). Projects address a broad spectrum of technical, acquisition, and policy issues relating to special operations, counter- and anti-terrorism, peacekeeping, psychological operations, counterinsurgency, unconventional warfare, and contingency operations. The project supports and is integrated into overall DoD efforts to develop options for dealing effectively with a wide range of military responsibilities in military operations other that war. This project provides a vehicle to initiate analysis required to support acquisition documentation and conceptual policy issues regarding roles and missions of SOF in the changing world environment. Analysis may also be used to improve OASD(SO/LIC)`s congressionally mandated oversight function of special operations and low-intensity conflict.

(U) P206, Explosive Ordnance Disposal/Low-Intensity Conflict (EOD/LIC). The EOD/LIC project is a rapid prototyping effort to provide technology and equipment to military operators who are confronted with explosive threats. Tasks focus on detection, countermeasures, and neutralization of explosive threats. Requirements submitted by the Joint Service EOD community and other LIC-oriented military users are prioritized by the OSD EOD/LIC Coordination Group.

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COST*(In Millions)*	FY 2000	FY 2001	FY 2002						Cost to Complete	Total Cost
Total Program Element (PE) Cost	0.000	8.543	8.799						Continuing	Continuing
Explosive Ordnance Disposal/Low Intensity Conflict/P206	0.000	7.317	7.486						Continuing	Continuing

(U) Project Number and Title: P206 Explosive Ordnance Disposal/Low Intensity Conflict

(U) PROGRAM ACCOMPLISHMENTS AND PLANS

(U) FY 2001 Plans:

(U) Complete development of a limpet mine imaging SONAR (LIMIS). LIMIS is a diver-held or submersible mounted sonar that provides almost photographic quality images in turbid water. It was developed to detect and identify limpet mines on hulls of ships. It is also used to identify and inspect bottom mines and other objects where optical systems fail.

(U) Complete development of an in-mask liquid crystal diver display system that provides the diver with depth, dive time and tank pressure via wireless RF link.

(U) Complete development and safety certification of an improved underwater demolition charge to counter threats in the very shallow water mine countermeasure (VSW/MCM) area of responsibility. The system will allow a diver to carry multiple charges and will interface with existing and emerging firing devices.

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(U) Complete development and safety certification of a limpet mine neutralization tool. System will be small and easy to use. The system will interface with existing and emerging firing devices.

(U) Complete development of an acoustic-based underwater navigation system for divers that will ensure thorough hull searches are performed. The system will be man-portable, accurate to within 1-meter and provide real-time location of divers and contacts.

(U) Complete development of a C3I system that will reduce the amount of time an operator has to spend down range by allowing "seamless" audio, video and data transfer between the two sites via digital RF link. The system will be HERO safe, modular, man-portable and wireless.

(U) Complete development of a SOF/EOD Tactical Decision Aid (TDA). The TDA is a software based information tool that supports SOF/EOD field analysis. The EOD TDA will include: time fuse burn calculations, standard mathematical calculations and unit conversions, blast/frag distance and blast overpressure effects calculations, nuclear weapon stay times, downwind hazard prediction software, safe swimmer distance calculations and a time zone conversion tool. The SOF TDA will incorporate an automated target analysis tool.

(U) Complete the development of a laser ordnance neutralization system and demonstrate the use of high-powered diode-pumped lasers to neutralize unexploded ordnance (UXO). This project focuses on neutralizing small UXO on active target ranges. Specific areas being studied include cost benefits, neutralization efficiency, and environmental impact.

(U) Complete development of a maritime ballistic armor system for the Coastal Assault Craft (CAC) and provide data for input into the Special Operations Craft – Riverine (SOC-R) Operational Requirement. Protection is to provide coverage to the passengers, crew and critical craft systems assuming an overall defensive posture.

(U) Complete improvements to the unmanned surface vehicle developed under the EOD/LIC program, The focus areas of this effort are to improve vehicle reliability and maintainability, improve data links, ruggedize and reduce in size the command and control system and improve situational awareness capabilities. ($ 0.450 million)

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(U) Continue development of an EOD underwater remotely operated vehicle (ROV) system. The task focuses on the use of COTS systems that have the potential to provide Navy EOD teams with a small (i.e. 2-person portable or smaller) ROV/sensor package for employment from rigid hull inflatable boats (RHIB) or similar small craft of opportunity to reacquire, investigate and identify previously reported mine-like contacts in the water column and on the seabed.

(U) Continue development of an RF X-ray system. This effort will modify the existing RTR-4 X-ray system to increase the effective image transfer range from 300 feet to over one (1) mile via the use of a digital RF link. The system will be configured such that operation can be controlled from the command post of the EOD incident site.

(U) Continue task to identify and integrate COTS/GOTS chemical/biological/nuclear (CBN) sensors onto EOD robotic platforms. The system(s) will be able to identify and quantify CBN threats accordingly.

(U) Continue development of a chemical leak seal system. This system will prevent chemical or biological agent leakage from damaged munitions. The system will have minimal set up time, will seal a variety of ordnance types, holes and hole sizes, will utilize COTS materials to the greatest extent possible and will be packaged in a kit to allow for rapid field deployment and ease of use. The system will be an alternative to Plaster-of-Paris.

(U) Continue development of a miniature diver display system that will provide full color, high-resolution imagery to the diver. The system will employ miniature, lightweight optics that will provide a clear, fixed focus, magnified image. The diver will control the image brightness so that the display can be optimized for daytime, or nighttime use. Custom-built interface electronics will allow the display to present video, or other data (such as from SONAR or computers).

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(U) Continue development of an incident site reconnaissance (ISR) system. This project will provide EOD technicians with a field capability to gather digital imagery, GPS coordinates and laser range finder information with the ability to relay that data to a rear area commander. This system will automate the reconnaissance of an area of interest and provide a communications link in which to relay that information. The data will be transmitted over an RF link to a computer containing an appropriate software package to allow for the overlay of data onto a digital map. COTS technology will be used to the greatest extent possible.

(U) Continue development of a hydro-abrasive water cutting system that will allow EOD technicians to cut open UXO remotely. Initial user training has been accomplished. Testing of manufacturer's claims and field evaluation being performed.

(U) Continue development of a low-cost and highly portable mini-reconnaissance vehicle based on COTS equipment. Potential applications of the vehicle include use as a remote observation post, linking on-site operators to a remote command center, and acting as a mobile platform for auxiliary sensors such as chemical and biological agent alarms with the addition of a disruptor capability.

(U) Continue development of the Advanced EOD Publication Set.
($ 2.200 million)

(U) Start development of a single sided x-ray system.

(U) Evaluate the Telepresent-Rapid-Aiming-Platform (TRAP) for Standoff Munitions Disruption (SMUD) applications and obtain MARSYSCOM and WSESRB certification.

(U) Start a task to evaluate the CO2 Laser Ordnance Neut ralization System and the All-purpose Remote Transport System (ARTS) integrated platform for range clearance applications.

(U) Start development of a more effective and efficient means to initiate the M-14 Thermite grenade.

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(U) Start development of an X-ray film system that provides a larger image. It is anticipated that the system shall incorporate a grid arrangement of 8 x 10 film.

(U) Start development of an X-ray interpretation system. Effort will identify/develop IED component recognition algorithms. The system will be able to interpret digital X-ray images and automatically identify contents and components.

(U) Start development of a dispersal/fragmentation containment system. The effort will focus on COTS items or materials.

(U) Start a task to evaluate thermal imagers for EOD use. Determine if COTS/GOTS thermal imaging technology can effectively be used to locate concealed ordnance or IEDs.

(U) Start development of a coxswain's steering assistant. Effort will evaluate COTS systems that provide compass, GPS and navigational chart graphics on one screen. The system will be portable, weather/environment resistant, low light/daylight visible and laptop sized as a guide.

(U) Start development of advanced armor solutions to EOD/SOF threats. Effort will maintain IPT formed in support of maritime ballistic armor task and continue to develop/evaluate advanced armoring techniques and materials.

(U) Start development of an unmanned reconnaissance/obscurant craft. Focus will be on forwarding technology developed under the unmanned surface vehicle task and optimizing size for deployment from a SOC riverine craft.

(U) Start development of an obscurant capability for the Special Operations Craft – Riverine and the unmanned reconnaissance/obscurant craft.

(U) Start development of an incendiary device for SOF operators. Device will have the capability to adhere to vertical and overhead surfaces as well as mines placed on the ground.

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(U) Start development of an integrated diver display mask for the LAR V diving system. System will forward technology previously developed under EOD/LIC and provide the SOF diver/swimmer with an in-mask LCD display of navigation and dive profile information.

(U) Start development of a maritime equipment transfer platform. The effort will provide a small, robust amphibious capability to transfer equipment from support craft to inshore elements via an ATV type platform. The focus will be on COTS/MCOTS systems.

(U) Perform acoustic and magnetic signature evaluations and validate performance characteristics of the Metal Matrix cast composite engine and the Vehicle Development, Inc. reflex water jet.

(U) Start development of an improved special operations craft. Effort will focus on COTS/MCOTS solutions.

(U) Start development of an advanced propulsion system for the unmanned reconnaissance/obscurant craft. Effort will focus on COTS non-gasoline engines and will be demonstrated in the unmanned surface vehicle previously developed under EOD/LIC.

(U) Start development of a robotic mine sensor system that will maneuver and mark a path through a minefield. System will improve mission success-soldier survivability when conducting SR/DA missions in mined areas.
($ 4.667 million)

(U) FY 2002 Plans:

(U)Complete evaluation of thermal imagers for EOD use. Determine if COTS/GOTS thermal imaging technology can effectively be used to locate concealed ordnance or IEDs.

(U)Complete development of a dispersal/fragmentation containment system. The effort will focus on COTS items or materials.

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(U)Complete development of a coxswain's steering assistant. Effort will evaluate COTS systems that provide compass, GPS and navigational chart graphics on one screen. The system will be portable, weather/environment resistant, low light/daylight visible and laptop sized as a guide.

(U)Complete development of an incendiary device for SOF operators. Device will have the capability to adhere to vertical and overhead surfaces as well as mines placed on the ground.

(U)Complete acoustic and magnetic signature evaluations and performance validation of the Metal Matrix cast composite engine and the Vehicle Development, Inc. reflex water jet.

(U)Complete development of an improved special operations craft. Effort will focus on COTS/MCOTS solutions.

(U)Complete development of an advanced propulsion system for the unmanned reconnaissance/obscurant craft. Effort will focus on COTS non-gasoline engines and will be demonstrated in the unmanned surface vehicle previously developed under EOD/LIC.
($ 0.750 million)

(U)Continue development of a single sided x-ray.

(U)Continue development of x-ray interpreter system. Effort will identify/develop IED component recognition algorithms. The system will be able to interpret digital X-ray images and automatically identify contents and components.

(U)Continue development of advanced armor solutions to EOD/SOF threats. Effort will maintain IPT formed in support of maritime ballistic armor task and continue to develop/evaluate advanced armoring techniques and materials.

(U)Continue development of an unmanned reconnaissance/obscurant craft. Focus will be on forwarding technology developed under the unmanned surface vehicle task and optimizing size for deployment from a SOC riverine craft.

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(U)Continue development of an obscurant capability for the Special Operations Craft – Riverine and the unmanned reconnaissance/obscurant craft.

(U)Continue development of an integrated diver display mask for the LAR V diving system. System will forward technology previously developed under EOD/LIC and provide the SOF diver/swimmer with an in-mask LCD display of navigation and dive profile information.

(U)Continue development of a maritime equipment transfer platform. The effort will provide a small, robust amphibious capability to transfer equipment from support craft to inshore elements via an ATV type platform. The focus will be on COTS/MCOTS systems.

(U)Continue development of a robotic mine sensor robot that will maneuver and mark a path through a minefield. System will improve mission success-soldier survivability when conducting SR/DA missions in mined areas. ($ 2.200 million)

NEW STARTS - EOD/LIC candidate submission input will be received January 2001. Candidate selection will be conducted in spring 2001 for FY 2002 new start tasks.($ 4.536 million)

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COST*(In Millions)*	FY 2000	FY 2001	FY 2002						Cost to Complete	Total Cost
Total Program Element (PE) Cost	0.000	8.543	8.799						Continuing	Continuing
Special Operations/Low Intensity Conflict (SO/LIC)/P205	0.000	1.226	1.313						Continuing	Continuing

(U) Project Number and Title: P205 Special Operations/Low Intensity Conflict (SO/LIC)

(U) PROGRAM ACCOMPLISHMENTS AND PLANS

(U) FY 2001 Plans:

(U)The FY 2001 program will be finalized in August 2000, ensuring that study projects are timely and responsive to the requirements of DoD policy makers.($ 1.226 million)

(U) FY 2002 Plans:

(U)The FY 2002 program will be finalized in August 2001, ensuring that study projects are timely and responsive to the requirements of DoD
policy makers.($ 1.313 million)

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(U) PROGRAM ACCOMPLISHMENTS AND PLANS

(U) B. Program Change Summary	FY2000	FY2001	FY2002	Total Cost
Previous President's Budget Submit	0.000	8.622	8.750	Continuing
Appropriated Value				Continuing
Adjustments to Appropriated Value				
a. Congressionally Directed Undistributed Reduction	0.000	-0.079	0.000	
b. Rescission/Below-threshold Reprogramming, Inflation Adjustment	0.000	0.000	0.000	
c. Other	0.000	0.000	0.049	
Current President's Budget	0.000	8.543	8.799	Continuing

Change Summary Explanation: Funding changes are due to congressional undistributed reductions.

(U) Funding: Funding changes are due to congressional undistributed reductions and inflation adjustments. FY 2001 reductions reflect Section 8086 adjustments.

(U) Schedule: N/A

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(U) **Technical**: Funding changes are due to congressional undistributed reductions and inflation adjustments.

(U) **C.** **Other Program Funding Summary Cost**: N/A

(U) **D.** **Acquisition Strategy**: N/A

(U) **E.** **Schedule Profile**: N/A