

UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: January 2006	
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7					R-1 ITEM NOMENCLATURE PE 0101221N Strategic Sub & Wpns Sys Spt			
COST (\$ in Millions)		FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost*(total may or may not add due to rounding)		84.5	92.2	124.5	88.1	88.3	89.9	87.1
J2228 Technology Applications Program		77.1	85.7	81.2	84.9	85.1	86.6	86.6
J3158 Enhanced Special Weapons		0.0	0.0	43.1	2.9	2.9	2.9	0.0
S0004 TRIDENT Submarine System Improvement		7.4	6.5	0.2	0.3	0.3	0.4	0.5

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The TRIDENT II (D5) Submarine Launched Ballistic Missile (SLBM) provides the U.S. a weapon system with greater accuracy and payload capability as compared to the TRIDENT I (C4) system. TRIDENT II enhances U.S. strategic deterrence providing a survivable sea-based system capable of engaging the full spectrum of potential targets with fewer submarines. This Program Element supports investigations into new technologies which would help mitigate the program impact due to component obsolescence and a rapidly decreasing manufacturing support base. These efforts include Reentry System Applications and Guidance System Applications, Radiation Hardened Electronics Applications, and Strategic Propulsion Applications. The TRIDENT Submarine System Improvement Program develops and integrates command and control Improvements needed to maintain TRIDENT Submarine operational capability through the life cycle of this vital strategic asset. The program conducts efforts needed to maintain strategic connectivity, ensure platform invulnerability, and reduce lifecycle costs through Obsolete Equipment Replacement (OER) and commonality.

The policies and requirements regarding the safeguard of nuclear weapons within the Department of Defense is established by DoD S5210.41M. Within the Department of the Navy, nuclear weapons are limited to TRIDENT Fleet Ballistic Missiles (FBM), either deployed aboard TRIDENT submarines or located landside at Naval Submarine Base, Kings Bay or Naval Submarine Base, Bangor where missiles are first assembled as well as repaired. The Chief of Naval Operations (CNO) has assigned the Strategic Systems Programs, the FBM program manager, with mission responsibility for the safeguard of FBM nuclear assets. More specifically, the mission includes landside and pier operations as well as transits to and from the dive point, each of which present challenges to personnel as well as existing technologies. This budget supports efforts directed at improving the current technological baseline through a series of studies focusing on land and waterside requirements, including both surface and underwater. Collectively, these efforts will improve countermeasure technologies addressing detection, delay and denial.

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Exhibit R-2, RDTEN Budget Item Justification
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B. (U) Program Change Summary:

	<u>FY 2005</u>	<u>FY2006</u>	<u>FY2007</u>
Previous President's Budget (FY 2006 President's Controls)	89.9	90.0	89.4
Current BES/Fact of Life Budget (FY 2007 President's Budget Controls)	84.5	92.2	124.5
Total Adjustments:	-5.4	+2.2	+35.1

Summary of Adjustments:

Execution Realignments	-2.2		
SBIR Transfer	-1.8		
Department of Energy Reduction	-.1		
Nuclear Physical Security	-1.3		
Congressional Reductions (Project 2228)		-1.3	
Contractor Support/Miscellaneous (Projects 2228 and 3158)			-7.3
SSBN funding adjustment- project S0004			-2.7
Thin Plate Congressional Plus-up (Project S0004)		+3.5	
Enhanced Special Weapons Increase			+45.1

C. (U) Other Program Funding Summary: See enclosed R-2a for each individual project data.

D. (U) Acquisition Strategy: See enclosed R-2a for each individual project data.

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Exhibit R-2 RDTEN Project Justification
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EXHIBIT R-2a, RDT&E Project Justification		DATE: January 2006
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7		PROJECT NUMBER AND NAME Technology Applications J2228

COST (\$ in Millions)		FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost J2228 Technology Applications		77.1	85.7	81.2	84.9	85.1	86.6	86.6
RDT&E Articles Qty								

A. (U) MISSION DESCRIPTION AND BUDGET PROJECT JUSTIFICATION:

This project supports implementation of a coordinated Navy/Air Force Reentry System Applications Program (RSAP), a coordinated Navy/Air Force Strategic Guidance Applications Program (GAP), a coordinated Navy/Air Force Strategic Propulsion Applications Program (SPAP), and a coordinated Department of Defense Radiation Hardened Applications Program (RHAP). Reentry vehicle and guidance technology had been rapidly eroding beyond the point of being capable to respond to increasing aging phenomena and future requirements. The SPAP program, which commenced in FY 2004, demonstrates and validates technologies unique to strategic missile applications. The RHAP program, which commenced in FY 2004, addresses production, qualification and manufacturing issues associated with strategic and space radiation hardened electronics. The December 2001 DOD Nuclear Posture Review determined that infrastructure is a critical part of the new triad and these efforts form part of the infrastructure that supports the nuclear force structure.

- The RSAP program, through sustainment of the reentry vehicle technology base, will maintain confidence in the dependability and reliability of strategic SLBM and ICBM weapon systems over the long term when no new systems will be in development. Critical and unique attributes necessary for the design, development and in-service support of current and modernized SLBM reentry systems have been defined and will be maintained to insure a functioning readiness application technical capability in reentry is preserved. Working closely with the Air Force, Navy and Air Force requirements have been integrated into a comprehensive program. The program maintains close coordination with the DOD Science and Technology (S&T) community in order to: leverage S&T programs, ensure system driven technology base requirements are considered in contract awards, eliminate duplication of effort and provide an opportunity to demonstrate appropriate emerging technologies through a reentry flight test evaluation process.
- The GAP program provides a minimum strategic guidance core technology development capability consistent with the Strategic Advisory Group (SAG) recommendations to COMSTRATCOM. The SAG recommended that SSP establish a program which preserves this critical design and development core. It is a basic bridge program which develops critical guidance technology applicable to any of the existing Air Force/Navy strategic missiles. The objective is to transition from current capability to a long term readiness status required to support deployed systems. Air Force and Navy guidance technology requirements are integrated and needs prioritized. Efforts are focused on alternatives to technologies identified as system "weak links." Current system accuracy and functionality depends upon key technologies which provide radiation hardened velocity, attitude and stellar sensing capabilities. As the underlying technologies that currently provide these capabilities age and are no longer technically supportable, modern alternatives must be made available in order to allow for orderly replacement. There is no commercial market for these technologies and their viability depends on the strategic community.
- The SPAP program is a coordinated Navy/Air Force effort and addresses infrastructure needs by exercising critical developmental skills to allow for future large-scale rocket motor test firings. A sound base of demonstrated technologies suitable for Strategic Missile applications will be maintained and will provide the nation a talent base and source of technologies suitable for a follow-on development program. Boost propulsion (missile stages), post boost propulsion (missile payload delivery vehicle) and Ordnance (separation events and flight termination events) are all integral parts of missile propulsion application efforts.
- The RHAP program sustains critical skills in radiation hardened electronics by advancing radiation hardened simulation technologies to reflect the processes in future systems. These efforts become of greater importance because of the shrinking industrial base for radiation hardened electronics, the unavailability of underground testing resources, and the loss of radiation hardened expertise. These efforts are coordinated by the Radiation Hardened Oversight Council (RHOC) chaired by the Director, Defense Research & Engineering (DDR&E). The RHAP program focuses on a coordinated Productization & Qualification Program which provides a transition between Science and Technology (S&T) and production by efficient utilization of limited resources, sharing of information to eliminate redundancy, increased use of common part/technologies, coordination into the RHOC technology road map and implementation of the USD (AT&L) investment strategy. The RHAP compliments the GAP electronic part activities by specifically focusing on those tasks required to ensure producability of radiation hardened parts.

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APPROPRIATION/BUDGET ACTIVITY		PROJECT NUMBER AND NAME	
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7		Technology Applications J2228	

B. (U) Accomplishments/Planned Program

	FY 05	FY 06	FY 07
Reentry Systems Application Program (RSAP)	25.9	26.6	27.0
RDT&E Articles Quantity			

(U) FY 2005 PLAN

- (U) (\$25.9) Continue Reentry System Applications Program. Fully obligated.
FY 2005 efforts include:
 - (U) Maintain the current capability and support the planned service life extension of Navy reentry systems.
 - (U) Continue development and ground testing of reentry vehicle candidate heatshield and nosetip materials including those available from Science & Technology (S&T).
 - (U) Characterize and develop alternate low-cost heatshield and replacement nosetip material.
 - (U) Conduct a ground and flight test program to assess performance of reentry components exposed to operational environments beyond their design life; complete evaluation of ground test results; flight test repackaged components for risk mitigation.
 - (U) Initiate fabrication of RB inertial sensor flight test instrumentation for FY 2006 flight test.
 - (U) Maintain RSAP technical program plan, conduct system assessments and continue Vulnerability & Hardening certification process development in absence of Nuclear Under Ground Testing (UGT) facilities.
 - (U) Continue Reentry Body material development and advanced flight test instrumentation activities.
 - (U) Begin development of radiation hardened processor for advanced GPS receiver.
 - (U) Initiate feasibility study of the use of Terminal Fix Sensors (TFS) for target area trajectory correction.
 - (U) Ground test advanced reentry material systems.
 - (U) Develop advanced avionics computer for new engineering instrumentation package.

(U) FY 2006 PLAN

- (U) (\$26.6) Continue Reentry System Applications Program. Full obligation is projected by the 3rd quarter of the first year.
FY 2006 efforts include:
 - (U) Maintain the current capability and support the planned service life extension of Navy reentry systems.
 - (U) Continue development and ground testing of reentry vehicle candidate heatshield and nosetip materials including those available from Science & Technology (S&T).
 - (U) Flight test alternate low-cost heatshield and replacement nosetip material.
 - (U) Flight test operationally aged heatshields to support aging trends and replacement materials assessments
 - (U) Complete development and flight test advanced reentry instrumentation such as inertial sensor and avionics computer, encapsulated on the updated engineering instrumentation package
 - (U) Maintain RSAP technical program plan, conduct system assessments and continue Vulnerability & Hardening certification process development in absence of Nuclear Under Ground Testing (UGT) facilities.
 - (U) Continue Reentry Body material development and advanced flight test instrumentation activities
 - (U) Continue development of advanced GPS receiver
 - (U) Ground test advanced reentry material systems and advanced instrumentation components
 - (U) Develop test instrumentation to demonstrate D5LE missile reentry body interface compatibility

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B. (U) Accomplishments/Planned Program (Continued)

(U) FY 2007 PLAN

- (U) (\$27.0) Continue Reentry System Applications Program. Full obligation is projected by the 3rd quarter of the first year.
FY 2007 efforts include:
 - (U) Maintain the current capability and support the planned service life extension of Navy reentry systems.
 - (U) Continue development of reentry vehicle replacement heatshield and nosetip materials and tooling
 - (U) Conduct aging assessment update for reentry vehicle materials and their replacements
 - (U) Develop low cost replacement materials using new/improved materials and processes for flight test experimentation.
 - (U) Develop appropriate flight test plan and initiate activities to test improved in-flight instrumentation data transfer
 - (U) Flight test and evaluate the Mk4A advanced engineering instrumentation package
 - (U) Maintain RSAP technical program plan, conduct system assessments and continue Vulnerability & Hardening certification process development in absence of Nuclear Under Ground Testing (UGT) facilities.
 - (U) Continue Reentry Body material development and advanced flight test instrumentation activities
 - (U) Continue development of test instrumentation to demonstrate D5LE missile reentry body interface compatibility
 - (U) Final development of advanced GPS receiver and integrate for flight test demonstration
 - (U) Continue ground testing of advanced instrumentation components

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RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7		Technology Applications J2228	

B. (U) Accomplishments/Planned Program

		FY 05	FY 06	FY 07
Guidance Application Program (GAP)		20.5	21.0	21.3
RDT&E Articles Quantity				

(U) FY 2005 PLAN

- (U) (\$20.5) Continue Strategic Guidance Applications Programs (GAP). Fully obligated.

FY 2005 efforts include:

- (U) Utilize alternate models for incorporation in Integrated Engineering Environment (IEE) and Hardware in the Loop (HWIL). Exercise alternate sensor technologies in the virtual system and the HWIL experiments. Finalize IEE/HWIL capability to an increased fidelity for system architecture/design tradeoffs in support of technology downselect by FY 2006 for D5 Life Extension.
- (U) Continue to evaluate alternate sensor technologies, (accelerometer, gyro, and stellar) and proximity electronics for application in the D5 Life Extension Guidance system and/or replacement of system weak links. Evaluate prototype radiation-hard sensor build and test results for appropriate applications.
- (U) (Sensors) Design, build, and evaluate Silicon Oscillator Accelerometer (SOA) support electronics and improved build processes. Prove SOA capability to meet Rad-hard strategic goals
- (U) (GYRO) Build 6 gyros focused on improved dynamic and radiation margin in support of Life Extension.
- (U) (GYRO) Develop Interferometric Fiber Optic Gyro (IFOG) hardenable electronic circuits.
- (U) (Stellar) Invest in alternate star sensor technologies for advanced system concepts, e.g. Electron Bombarded (intensified) Charged Coupled Device (CCD) and Active Pixel sensors.

(U) FY 2006 PLAN

- (U) (\$21.0) Continue Strategic Guidance Applications Programs (GAP). Full obligation is projected by the 3rd quarter of the 1st year.

FY 2006 efforts include:

- (U) Complete the prototype virtual system simulation model and demonstrate models in a closed-loop system. Modeling and simulation support for sub-system design and HWIL infrastructure development.
- (U) Continue to evaluate alternate sensor technologies, (accelerometer, gyro, and stellar) and proximity electronics for application in the D5 Life Extension Guidance system and/or replacement of system weak links. Evaluate prototype radiation-hard sensor build and test results for appropriate applications.
- (U) (SOA) Continue design, build and evaluate SOA support electronics and improved build processes. Prove SOA capability to meet Rad-Hard strategic goals.
- (U) (AltPIGA) Develop producible long life, low cost hemispherical gas bearing wheel.
- (U) (Hemispherical Resonator Gyro (HRG)) Examine and demonstrate technologies for reducing long term bias trending. Improve performance during and following shock and vibration events.
- (U) (IFOG) Improve IFOG proximity electronics hardness to strategic radiation levels.

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B. (U) Accomplishment/Planned Program (Continued)

(U) FY 2007 PLAN

- (U) (\$21.3) Continue Strategic Guidance Applications Programs (GAP). Full obligation is projected by the 3rd quarter of the first year.
FY 2007 efforts include:
 - (U) Support the IMU system integration effort, model simulation development in support of the enhanced ground testing (EGT) task, support remaining non-real-time subsystem/system simulation effort and support software Verification & Validation (V&V) testing.
 - (U) Continue to evaluate alternate sensor technologies, (accelerometer, gyro, and stellar) and proximity electronics for application in the D5 Life Extension Guidance system and/or replacement of system weak links. Evaluate prototype radiation-hardened sensor build and test results for appropriate applications.
 - (U) (SOA) Continue design, build and evaluate SOA support electronics and improved build processes. Test the all-silicon SOA in a strategic radiation environment.
 - (U) (AltPIGA) Develop producible long-life, low cost hemispherical gas bearing wheel and commercial processes/vendors for mass produced flexure/pick off assemblies for AltPIGA.
 - (U) (IFOG) Build and radiation test complete sense head. Perfect technologies and processes for producing low cost Rad Hard fiber. Conduct investigations to improve circumvention and recovery performance.
 - (U) (HRG) Improve benign scale factor performance. Examine and demonstrate technologies for reducing long term bias trending. Improve performance during and following shock and vibration events.

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B. (U) Accomplishments/Planned Program

	FY 05	FY 06	FY 07
Strategic Propulsion Applications Program (SPAP)	17.2	18.2	17.8
RDT&E Articles Quantity			

(U) FY 2005 PLAN

- (U) (\$17.2) Continue SPAP program. Fully obligated.
FY 2005 efforts include:
 - (U) Continue down select process of boost motor components by testing and prepare for a boost rocket motor test demonstration.
 - (U) Initiate component tests for identified post boost control technologies.
 - (U) Initiate component tests for identified missile ordnance technologies.
 - (U) Complete fabrication of boost motor test hardware
 - (U) Initiate down-select process for suitable post boost technologies test

(U) FY 2006 PLAN

- (U) (\$18.2) Continue SPAP program. Full obligation is projected by the 3rd quarter of the first year.
FY 2006 efforts include:
 - (U) Conduct biennial Industrial Base assessment.
 - (U) Complete boost rocket motor test demonstration
 - (U) Complete boost rocket motor post test assessment and evaluation.
 - (U) Complete component tests for identified post boost control technologies.
 - (U) Continue component tests for identified missile ordnance technologies.

(U) FY 2007 PLAN

- (U) (\$17.8) Continue SPAP program. Full obligation is projected by the 3rd quarter of the first year.
FY 2007 efforts include:
 - (U) Continue components tests for suitable boost motor technologies
 - (U) Continue to evaluate and down-select suitable technologies for boost motor test.
 - (U) Continue component tests for identified post boost control technologies.
 - (U) Continue to evaluate and down-select suitable post boost control technologies test.
 - (U) Complete component tests for identified missile ordnance technologies.
 - (U) Initiate preparations for post boost and ordnance demonstration test.

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B. (U) Accomplishments/Planned Program

	FY 05	FY 06	FY 07
Radiation Hardened Applications Program (RHAP)	13.5	19.9	15.1
RDT&E Articles Quantity			

(U) FY 2005 PLAN

- (U) (\$13.5) Continue RHAP program. Full obligation is projected by the end of the first year.
FY 2005 efforts include:
 - (U) Continue productization and qualification of .35 micron digital SOI technology.
 - (U) Continue productization and qualification of 0.7 micron mixed signal SOI technology.
 - (U) Continue physics based modeling method for nuclear radiation effects (X-ray, gamma, and neutron) on missile and guidance missile components.
 - (U) Initiate physics based modeling for nuclear radiation effects on complex digital circuits with built in testability.
 - (U) Initiate productization and qualification of high voltage analog SOI technology.
 - (U) Continue evaluation and validation of post radiation SPICE models for dose rate, total ionizing dose, and single event effects
 - (U) Continue technology/product development of alternate non-volatile memories, including Chalcogenide (CRAM), Magnetic (MRAM), and Silicon-on-Nitride (SONOS) technologies.

(U) FY 2006 PLAN

- (U) (\$19.9) Continue RHAP program, Full obligation is projected by the 3rd quarter of the first year.
FY 2006 efforts include:
 - (U) Initiate productization and qualification of .15 micron digital CMOS-epi and SOI technology.
 - (U) Continue productization and qualification of .35 micron mixed-signal SOI technology.
 - (U) Complete productization and qualification of .35 micron digital SOI technology
 - (U) Complete productization and qualification of 0.7 micron mixed-signal SOI technology
 - (U) Initiate productization and qualification of alternate non-volatile memories, including Chalcogenide (CRAM), Magnetic (MRAM) and Silicon-on-Nitride (SONOS) technologies.
 - (U) Continue productization and qualification of high-voltage analog SOI technology.
 - (U) Complete physics based modeling methods for nuclear radiation effects (X-ray, gamma, neutron) on missile and guidance/missile components.
 - (U) Continue physics based modeling for nuclear radiation effects on complex digital circuits with built in testability.
 - (U) Continue evaluation and validation of post radiation SPICE models for dose rate, total ionizing dose, neutron and single event effects.
 - (U) Initiate physics based modeling of survivability and rail-span collapse of complex digital circuits in dose-rate (X-ray and gamma) environment.

(U) FY 2007 PLAN

- (U) (\$15.1) Continue RHAP Program. Full obligation is projected by the 3rd quarter of the first year.
FY 2007 efforts include:
 - (U) Continue productization and qualification of .15/.35 micron digital CMOS-SOI technology.
 - (U) Complete productization and qualification of .35/.7 micron mixed-signal SOI products.
 - (U) Continue productization and qualification of primary non-volatile memory technology and product Magnetic (MRAM).
 - (U) Complete productization and qualification of high-voltage analog SOI technology
 - (U) Complete physics based modeling methods for nuclear radiation effects on complex digital circuits with built in testability.
 - (U) Complete evaluation and validation of post radiation SPICE models for dose rate, total ionizing dose, neutron and single event effects.
 - (U) Continue physics based modeling of survivability and rail-span collapse of complex digital circuits in dose-rate (X-ray and Gamma) environment.

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C. (U) Other Program Funding Summary: (Dollars in Thousands)

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>Total Complete</u>	<u>Total Cost</u>
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

D. (U) Acquisition Strategy:

Contracts will continue to be awarded to those sources who were engaged in the TRIDENT II (D5) development program and are currently engaged in the production and/or operational support of the deployed D5 Strategic Weapons Systems on the basis of Other Than Full and Open Competition pursuant to the authority of 10 U.S.C. 2304 (c) (1) and (3) implemented by FAR 6.302.-1, 3 4.

E. (U) Major Performers:

- LMSS / CA - Reentry Body Systems integration (RSAP)
- NSWC / VA - Heatshield Nostetip materials development (RSAP)
- ITT / CO - Vulnerability and hardness technologies (RSAP)
- CSDL / MA - Reentry Systems flight test instrumentation (RSAP)
- DOE / NM - Advanced fuzing technology (RSAP)
- CSDL / MA - Guidance Application program support (GAP)
- CSDL/MA- Guidance radiation hardened electronics integration(RHAP)
- CSDL/MA- Analog, digital, mixed-signal and discreet radiation model development (RHAP)
- HI/FL - RADHARD application specific integrated Circuit library (RHAP)
- NGMS/CA - RADHARD oxi-nitride non-volatile memory productization (RHAP)
- CSDL/MA - Analog, digital, mixed signal and discreet radiation model development (RHAP)
- BAE/MD - 4M-bit RADHARD Chalcogenide non-volatile memory product development (RHAP)
- NAWC/CA - Rocket Motor testing and integration (SPAP)
- LMSSC/CA - Missile systems integration (SPAP)
- NSWC/VA - Coordinating and executing ordnance tests (SPAP)

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Exhibit R-3 Cost Analysis								DATE: January 2006					
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT				PROJECT NUMBER AND NAME					
RDT&E, N / BA-7				PE 0101221N Strategic Sub & Wpns Sys Spt				Technology Applications J2228					

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost			FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
<u>Support & Management</u>														
Technology Applications	SS - CPFF	LMMS / CA	70.5			12.8	10-04	12.5	12-05	13.7	10-06	Cont.	Cont.	TBD
Technology Applications	WR	NSWC / VA	45.7			5.8	10-04	5.7	10-05	6.2	10-06	Cont.	Cont.	TBD
Technology Applications	MIPR	DOE / NM	18.9			1.0	10-04	1.0	10-05	1.0	10-06	Cont.	Cont.	TBD
Technology Applications	SS - CPFF	CSDL / MA	7.1			4.0	10-04	5.4	10-05	4.2	10-06	Cont.	Cont.	TBD
Technology Applications	SS - CPFF	ITT / CO	2.2			1.8	10-04	1.8	10-05	1.9	10-06	Cont.	Cont.	TBD
Technology Applications	SS - CPFF	CSDL / MA	143.2			13.4	10-04	18.0	02-06	17.9	10-06	Cont.	Cont.	TBD
Technology Applications	SS - CPFF	LMMSC/ CA	6.8			17.7	10-04	16.2	12-05	14.6	10-06	Cont.	Cont.	TBD
Technology Applications	WR	NAWC/CA	0.8			2.1	10-04	0.4	10-05	0.4	10-06	Cont.	Cont.	TBD
Technology Applications	WR	NSWC / VA	0.2			1.0	10-04	0.8	10-05	0.4	10-06	Cont.	Cont.	TBD
Technology Applications	SS - CPFF	CSDL / MA	2.2			5.2	10-04	3.5	02-06	5.3	10-06	Cont.	Cont.	TBD
Technology Applications	SS - CPFF	HI/FL	5.6			6.2	10-04	11.9	10-05	10.1	10-06	Cont.	Cont.	TBD
Technology Applications	SS - CPFF	NGMS/CA	1.0			1.5	10-04	0.0	10-05	0.0	10-06	Cont.	Cont.	TBD
Technology Applications	SS - CPFF	BAE/MD	1.3			0.5	10-04	0.0	11-05	0.0	10-06	Cont.	Cont.	TBD
Technology Applications	SS - CPFF	INTERSIL	0.0			1.5	10-04	2.0	10-05	2.0	10-06	Cont.	Cont.	TBD
Technology Applications	VARIOUS	VARIOUS	0.8			2.6	10-04	6.5	10-05	3.5	10-06	Cont.	Cont.	TBD
Subtotal Product Development			306.3			77.1		85.7		81.2				

Remarks:

Total Cost			306.3	0.0		77.1		85.7		81.2		Cont.	Cont.	

Remarks:

Exhibit R-3 Project Cost Analysis
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COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost J3158 Enhanced Special Wpns				43.1	2.9	2.9	2.9	
RDT&E Articles Qty								

A. (U) MISSION DESCRIPTION AND BUDGET PROJECT JUSTIFICATION:

The policies and requirements regarding the safeguard of nuclear weapons within the Department of Defense is established by DoD S5210.41M. Within the Department of the Navy, nuclear weapons are limited to TRIDENT Fleet Ballistic Missiles (FBM), either deployed aboard TRIDENT submarines or located landside at Naval Submarine Base, Kings Bay or Naval Submarine Base, Bangor where missiles are first assembled as well as repaired. The Chief of Naval Operations (CNO) has assigned the Strategic Systems Programs, the FBM program manager, with mission responsibility for the safeguard of FBM nuclear assets. More specifically, the mission includes landside and pier operations as well as transits to and from the dive point, each of which present challenges to personnel as well as existing technologies. This budget supports efforts directed at improving the current technological baseline through a series of studies focusing on land and waterside requirements, including both surface and underwater. Collectively, these efforts will improve countermeasure technologies addressing detection, delay and denial.

EXHIBIT R-2a, RDT&E Project Justification		DATE: January 2006
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7	PROJECT NUMBER AND NAME Enhanced Special Weapons J3158	

B. (U) Accomplishments/Planned Program

	FY 05	FY 06	FY 07
Project Cost J3158 Enhanced Special Wpns	0.0	0.0	35.2
SSBN Escort Mission			

(U) FY 2007 PLAN
(\$35.2) Enhanced Special Weapons/SSBN Escort Mission . Full obligation is projected by the 3rd quarter of the fiscal year.

FY 2007 efforts include:
(U) Research and study leading to new or improved technologies in both active and passive protection systems to be used in the safeguarding of Navy’s nuclear assets.
(U) Technology evaluations and marinization studies of a palletized protection system, capable of reliable operations including detection, characterization and response in a marine environment.
(U) Development and test of a prototype system. The prototype will consist of two independent palletized units operating together to properly demonstrate “system-level” capabilities and effectiveness in a hostile scenario.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE:	January 2006
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7		PROJECT NUMBER AND NAME Enhanced Special Weapons J3158	

B. (U) Accomplishments/Planned Program

	FY 05	FY 06	FY 07
Project Cost J3158 Enhanced Special Wpns	0.0	0.0	7.9
Nuclear Weapons Security			

(U) FY 2007 PLAN

(U) (\$7.9) Enhanced Special Weapons / Nuclear Weapons Security program. Full obligation is projected by the 3rd quarter of the first year.

FY 2007 efforts include:

(U) Underwater Close-in Defense : This effort is focused on developing an advanced underwater vehicle and diver detection and deterrence system for the protection of high value maritime assets while they are in port. The conceptual system involves a physical net-like barrier that combines use of fiber-optic sensing and alerting technology to provide an extremely high positive detection rate and extremely low false alarm rate. The concept design also includes increased alert time to improve positive identification of intruders and for activation of response systems.

(U) Remotely Operated Weapons Technologies: This task is directed to enhancing the current ROWs technology that uses direct copper connection and modifies it to a network for Navy applications. In addition, new features (i.e. target tracking) for added capabilities will be researched and prototyped.

(U) Land Water Interface Sensors: This effort includes research into existing sensor technologies to improve capabilities in areas where current sonars and land based sensors capabilities could be improved. Initial findings are expected to be sufficient to warrant development and test of prototype.

(U) Technology Reviews: This tasks involves reviews and assessments of technologies and advanced concepts for applicability or potential adaptation to protective measures required for safeguard of nuclear assets.

(U) Access Doors: This task explores developing new concepts, technologies and designs for doors and closures protecting nuclear assets.

(U) Final Denial Technologies: This task explores concept weapons, microwaves, acoustic devices, etc. for application to denial requirements related to protection of nuclear assets.

(U) Smart Sensors: This task researches new technologies and concepts for detecting explosives or explosive devices from greater distances than currently available.

(U) Research and study leading to new or improved technologies in both active and passive protection systems to be used in the safeguarding of Navy's nuclear assets.

EXHIBIT R-2a, RDT&E Project Justification					DATE: January 2006	
APPROPRIATION/BUDGET ACTIVITY RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7					PROJECT NUMBER AND NAME Enhanced Special Weapons J3158	

C. (U) Other Program Funding Summary: (Dollars in Thousands)

								Total	Total
<u>Nuclear Weapons Security</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>Complete</u>	<u>Cost</u>
MILCON (CNI)	51.6	91.6	48.2	59.9	101.5	114.0	114.4	continuing	continuing
OPN BA 7/812800/PE 0208147N	9.5	66.1	22.0	51.1	60.9	29.8	26.4	continuing	continuing
O&MN BA 1/1D2D/PE 0101221N	41.0	68.0	87.4	77.4	91.7	80.7	83.3	continuing	continuing
<u>Transit/Escort</u>									
OPN BA1/1210/PE 0204228N	0	44.6	20.9	30.8	0.0	53.0	66.5	continuing	continuing
OPN BA1/0950/PE 0101228N	0	0.0	0.0	37.0	0.0	0.0	0.0	Complete	37.0
WPN BA4/4217/PE 0101228N	0	5.2	0.0	0.0	70.0	14.1	0.0	Complete	89.3
OMN BA1/1D2D/0101221N	0	19.2	63.7	73.4	86.9	87.2	85.6	continuing	continuing

D. (U) Acquisition Strategy:

Full and open competition

E. (U) Major Performers:

- TBD - Marinization of Integrated Army Active Protection System (IAAPS) and deliver two (2) operational prototype units.
- NFESC/CA - Underwater Close-in defense
- DOE/NM - Technology Reviews
- APL/MD - Remotely Operated Weapons technologies; final denial technologies.

Exhibit R-3 Cost Analysis										DATE:				
										January 2006				
APPROPRIATION/BUDGET ACTIVITY				PROGRAM ELEMENT				PROJECT NUMBER AND NAME						
RDT&E, N / BA-7				PE 0101221N Strategic Sub & Wpns Sys Spt				Enhanced Special Weapons J3158						

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Support & Management														
Enhanced Special Weapons	CPFF	TBD	0.0	0.0	N/A	0.0	N/A	0.0	N/A	35.2	10-06	Cont.	Cont.	TBD
Enhanced Special Weapons	WR	NFESC/CA	0.0	0.0	N/A	0.0	N/A	0.0	N/A	3.0	10-06	Cont.	Cont.	TBD
Enhanced Special Weapons	MIPR	DOE/NM	0.0	0.0	N/A	0.0	N/A	0.0	N/A	2.0	10-06	Cont.	Cont.	TBD
Enhanced Special Weapons	CPFF	APL/MD	0.0	0.0	N/A	0.0	N/A	0.0	N/A	1.1	10-06	Cont.	Cont.	TBD
Enhanced Special Weapons	VARIOUS	VARIOUS	0.0	0.0	N/A	0.0	N/A	0.0	N/A	1.8	10-06	Cont.	Cont.	TBD
Subtotal Product Development			0.0	0.0		0.0		0.0		43.1				

Remarks:

Total Cost			0.0	0.0		0.0		0.0		43.1		Cont.	Cont.	

Remarks: