

UNCLASSIFIED

PE NUMBER: 0604602F

PE TITLE: Armament/Ordnance Development

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance Development

Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	8.179	8.280	7.786	4.847	2.007	2.102	2.055	1.984	Continuing	TBD
3133 Bombs & Fuzes	6.381	6.875	6.349	3.758	0.699	0.776	0.797	0.801	Continuing	TBD
4696 Armament Standardization Program	1.661	1.264	1.291	0.935	1.152	1.156	1.084	1.006	Continuing	TBD
5613 Containers	0.137	0.141	0.146	0.154	0.156	0.170	0.174	0.177	Continuing	TBD

(U) **A. Mission Description and Budget Item Justification**

The Armament Ordnance Development program provides for initial and continuing development of munition equipment for support and operational use.

Bombs and Fuzes: This project develops and improves conventional bombs and fuzes. It currently includes integration of the Joint Programmable Fuze (JPF) on legacy weapons, other fuze development, and Insensitive Munitions (IM), the use of an insensitive explosive fill and bomb case modifications for MK-80 series bombs to make these weapons insensitive to unplanned stimuli.

Armament Standardization/Control/Munitions Material Handling Equipment (MMHE): This continuing project develops and improves the standardization and commonality of munitions handling and armament equipment to preclude duplication. This project's efforts are limited to the study, design, and development of MMHE and armament control systems. Procurement will be performed and funded by the applicable weapons system project.

Containers: This project funds the operation of the tri-service Container Design Retrieval System (CDRS). This maintains a container database to preclude proliferation and duplication of munitions containers. It also supports organic container design, acquisition transportation, prototyping, testing capabilities, as well as the Joint Ordnance Commander's Working Group (JOCG) for Packaging, Handling, and Loading.

This program is in Budget Activity 5 - System Development and Demonstration because the projects support the SDD phase of several munitions related items and functions.

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	8.347	8.353	8.354	5.146
(U) Current PBR/President's Budget	8.179	8.280	7.786	4.847
(U) Total Adjustments	-0.168	-0.073		
(U) Congressional Program Reductions	0.000	-0.073		
Congressional Rescissions	0.000	0.000		
Congressional Increases	0.000	0.000		
Reprogrammings	0.084	0.000		
SBIR/STTR Transfer	-0.252	0.000		

(U) **Significant Program Changes:**

R-1 Shopping List - Item No. 80-2 of 80-15

Exhibit R-2 (PE 0604602F)

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Exhibit R-2, RDT&E Budget Item Justification		DATE
BUDGET ACTIVITY	PE NUMBER AND TITLE	
05 System Development and Demonstration (SDD)	0604602F Armament/Ordnance Development	
None		

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Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance
Development

PROJECT NUMBER AND TITLE

3133 Bombs & Fuzes

Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
3133 Bombs & Fuzes	6.381	6.875	6.349	3.758	0.699	0.776	0.797	0.801	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

There are two subprojects in the Bombs and Fuzes project: (1) Fuzes: Joint Programmable Fuze (JPF) - JPF enables the fuze settings to be changed from the aircraft, optimizing the performance of the weapon by matching the fuze setting with the target selected. JPF was developed primarily for JDAM and funded by the JDAM program (PE 0604618). This project funds the integration of JPF on other AF legacy weapons. Hard Target Smart Fuze (HTSF) - There may be residual efforts in closing out this program, as well as systems analysis and travel. (2) Insensitive Munitions (IM) develops an explosive fill and bomb case modification to make conventional weapons insensitive to unplanned stimuli as given in MIL-STD-2105C.

This program is in Budget Activity 5 - System Development and Demonstration (SDD) because the projects support the SDD phase of several munitions related items and functions.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue Insensitive Munitions (IM) development effort. Conduct lab level performance tests, environmental tests, bomb case development performance tests, and prototype booster reliability tests	0.000	1.100	0.480	0.246
(U) JPF legacy weapons integration and other fuze activity	0.848	0.475	0.865	0.938
(U) Formulate IM explosive development fill and integrate the fuze on IM filled bombs	2.697	1.347	0.517	0.265
(U) Conduct bomb case study and comparative testing	2.836	3.953	4.487	2.309
(U) Total Cost	6.381	6.875	6.349	3.758

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) N/A										

(U) **D. Acquisition Strategy**

The acquisition strategy for the MK-84/MK-82 Insensitive Munition (IM) was based on Best Value due to the redundancy of approaches presented by competing offerors.

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Exhibit R-3, RDT&E Project Cost Analysis											DATE			
											February 2005			
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE				
05 System Development and Demonstration (SDD)					0604602F Armament/Ordnance Development					3133 Bombs & Fuzes				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2004 Cost	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) Product Development														
ATK (HTSF)	CPIF/CPF F	Hopkins, MN	23.378	0.590	Jan-04	0.000		0.000		0.000		0.000	23.968	23.968
Kaman/Dayron (JPF)	FPIF	Orlando, FL	8.190	0.000		0.000		0.000		0.000		0.000	8.190	8.190
Air Force Research Lab/MN (IM)	In-house	Eglin AFB, FL	2.233	2.002	N/A	1.400	N/A	0.550	N/A	0.628	N/A	0.000	6.813	6.813
General Dynamics OTS (IM)	CPFF	Niceville, FL	0.956	1.125	Dec-03	0.600	Jan-05	0.405	Jan-06	0.000		0.000	3.086	3.086
McAAP	Army	McAllester, OK	0.000	0.339	N/A	0.850	N/A	0.400	N/A	0.000	N/A	0.000	1.589	1.589
Subtotal Product Development			34.757	4.056		2.850		1.355		0.628		0.000	43.646	43.646
Remarks:	CPIF = Cost Plus Incentive Fee; CPFF = Cost Plus Fixed Fee													
(U) Support														
TEAS/ TEAMS (Fuze Activity)	FFP	Eglin AFB, FL	4.503	0.122	Oct-03	0.000		0.000		0.000		0.000	4.625	4.625
AAC/YU-FUZES (Fuze Activity)	In-house	Eglin AFB, FL	1.308	0.136	N/A	0.243	N/A	0.440	N/A	0.469	N/A	1.537	4.133	4.133
AAC/XR (IM)	In-house	Eglin AFB, FL	0.390	0.291	N/A	0.300	N/A	0.300	N/A	0.480	N/A	0.000	1.761	1.761
TEAS/TAMS (IM)	FFP	Eglin AFB, FL	0.695	0.507	Oct-03	0.440	Oct-04	0.440	Oct-05	0.440	Oct-06	0.000	2.522	2.522
Subtotal Support			6.896	1.056		0.983		1.180		1.389		1.537	13.041	13.041
Remarks:	TEAS/TAMS contractors provide support to the System Program Office (SPO) for technical (TEAS) and management/financial (TAMS) services. FFP = Firm Fixed Price													
(U) Test & Evaluation														
Fuze Testing (gov't agencies)	In-house	Various	6.331	0.000		0.232	N/A	0.425	N/A	0.469	N/A	1.537	8.993	9.993
46th Test Wing (IM)	In-house	Eglin AFB, FL	0.296	0.824	N/A	1.400	N/A	0.356	N/A	0.000	N/A	0.000	2.876	2.876
Navy, China Lake (IM)	Navy	China Lake, CA	0.000	0.445	N/A	1.410	N/A	3.033	N/A	1.272	N/A	0.000	6.160	6.160
Subtotal Test & Evaluation			6.627	1.269		3.042		3.814		1.741		1.537	18.029	19.029
Remarks:														
(U) Total Cost			48.280	6.381		6.875		6.349		3.758		3.073	74.716	75.716

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

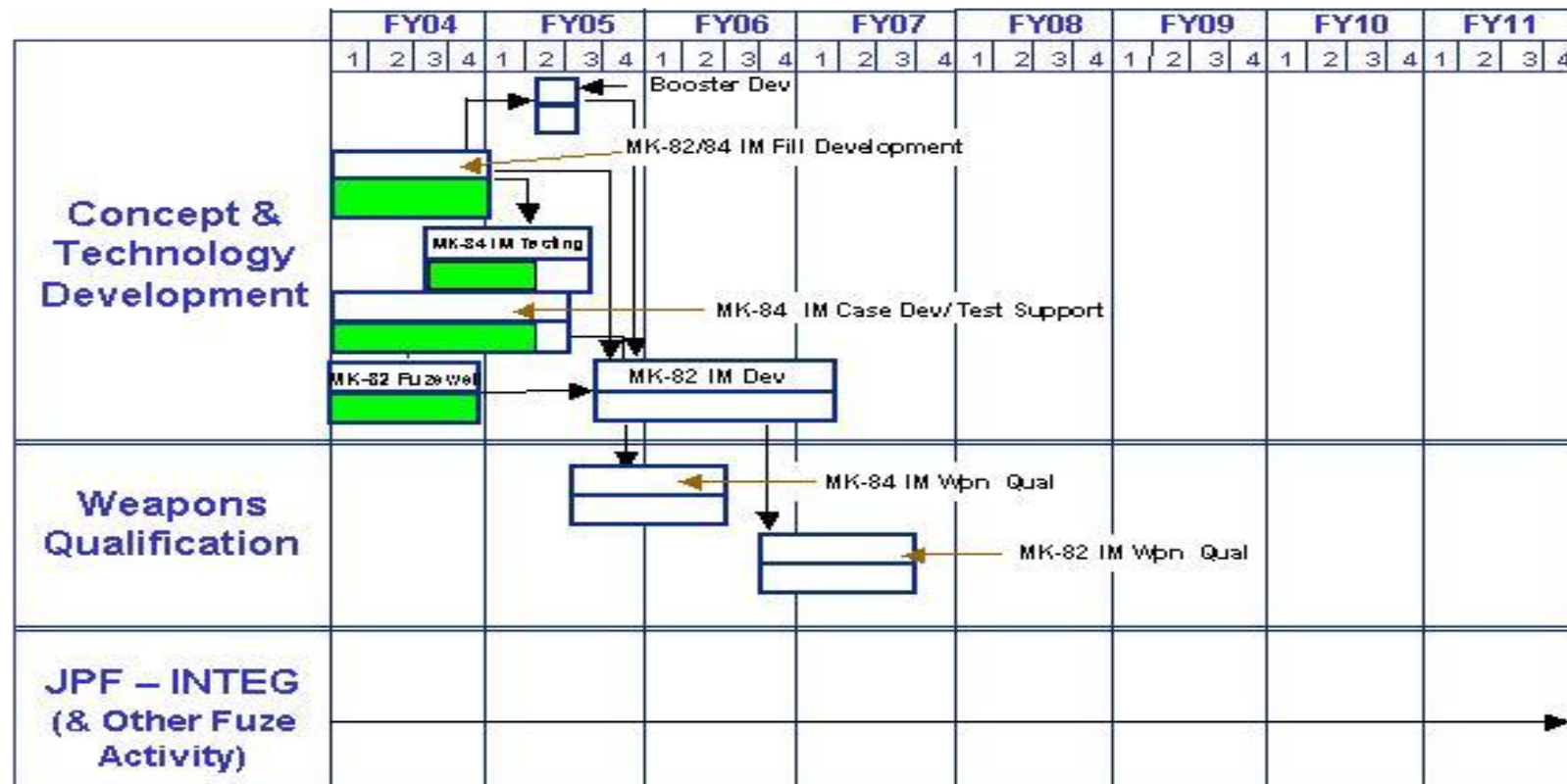
PE NUMBER AND TITLE

0604602F Armament/Ordnance
Development

PROJECT NUMBER AND TITLE

3133 Bombs & Fuzes

Insensitive Munitions (IM) and Joint Programmable Fuze (JPF) Schedule



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Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance
Development

PROJECT NUMBER AND TITLE

3133 Bombs & Fuzes

(U) Schedule ProfileFY 2004FY 2005FY 2006FY 2007

(U) FUZES

(U) JPF Integration on Legacy Weapons & Other Fuze Activity

1-4Q

1-4Q

1-4Q

1-4Q

(U) INSENSITIVE MUNITIONS (IM)

(U) IM Fill Development

1-3Q

(U) MK-84 IM Bomb Case Study/Test

1-4Q

1-2Q

(U) Small-scale Sensitivity/Qual Testing

1-4Q

1-3Q

(U) MK-84 IM System Integration/Weapons Qual

3-4Q

1-2Q

(U) MK-82 IM System Integration/Weapons Qual

3-4Q

1-4Q

1-3Q

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance
Development

PROJECT NUMBER AND TITLE

4696 Armament Standardization
Program

Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4696 Armament Standardization Program	1.661	1.264	1.291	0.935	1.152	1.156	1.084	1.006	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

Armament Standardization/Control/Munitions Material Handling Equipment (MMHE): These continuing projects develop and provide for acquisition of standardized, safe, and user-friendly munitions handling and armament equipment with common life cycle support. Projects will reduce proliferation and increase workload efficiencies while reducing mobility footprint. Project efforts are limited to study, design, test and development. Procurement will be performed and funded by the applicable weapons system project or air logistics center.

This program is in Budget Activity 5 - System Development and Demonstration (SDD) because the projects support the SDD phase of several munitions related items and functions.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

(U) Design, prototype, test and develop various MMHE projects for AF use.

(U) Total Cost

<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
1.661	1.264	1.291	0.935
1.661	1.264	1.291	0.935

(U) **C. Other Program Funding Summary (\$ in Millions)**

<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>Cost to</u>	<u>Total Cost</u>
<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) N/A

(U) **D. Acquisition Strategy**

MMHE is a program of continuing efforts (projects) with activities performed organically or through contracted services.

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Exhibit R-3, RDT&E Project Cost Analysis

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance
Development

PROJECT NUMBER AND TITLE

4696 Armament Standardization
Program

(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2004 Cost</u>	<u>FY 2004 Cost</u>	<u>FY 2004 Award Date</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Support</u> AAC/YBC (Program Office)	In-house (RREO)	Eglin AFB, FL	0.674	0.150	N/A	0.114	N/A	0.131	N/A	0.097	N/A	Continuing	TBD	TBD
Subtotal Support			0.674	0.150		0.114		0.131		0.097		Continuing	TBD	TBD
Remarks:														
(U) <u>Product Development</u> J.E. Sverdrup	FFP	Eglin AFB, FL	3.319	0.987	Jan-04	0.702	Jan-05	0.715	Jan-06	0.720	Jan-07	Continuing	TBD	TBD
96 LRS	In-house (RREO)	Eglin AFB, FL	0.516	0.339	N/A	0.278	N/A	0.275	N/A	0.038	N/A	Continuing	TBD	TBD
EDSD	In-house (RREO)	Eglin AFB, FL	0.043	0.035	N/A	0.020	N/A	0.020	N/A	0.000	N/A	Continuing	TBD	TBD
Phototype Fabrication Shop	In-house (RREO)	Eglin AFB, FL	1.050	0.150	N/A	0.150	N/A	0.150	N/A	0.080	N/A	Continuing	TBD	TBD
Subtotal Product Development			4.928	1.511		1.150		1.160		0.838		Continuing	TBD	TBD
Remarks:														
(U) Total Cost			5.602	1.661		1.264		1.291		0.935		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance
Development

PROJECT NUMBER AND TITLE

4696 Armament Standardization
Program

The Armament Standardization Program consists of several continuing projects that support the SDD phase of several munitions-related items and functions.

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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance
Development

PROJECT NUMBER AND TITLE

4696 Armament Standardization
Program(U) Schedule ProfileFY 2004FY 2005FY 2006FY 2007

(U) Study, Design, and Test MMHE

1-4Q

1-4Q

1-4Q

1-4Q

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance
Development

PROJECT NUMBER AND TITLE

5613 Containers

Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
5613 Containers	0.137	0.141	0.146	0.154	0.156	0.170	0.174	0.177	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

(U) **A. Mission Description and Budget Item Justification**

Containers: This project funds the operation of the Tri-Service Container Design Retrieval System (CDRS). The CDRS maintains a container database to preclude proliferation and duplication of munitions containers. It also supports the Joint Ordnance Commander's Working Group (JOCWG) for packaging, handling and loading. In addition, CDRS supports organic container design, acquisition transportation, prototyping and testing capabilities.

This program is in Budget Activity 5 - System Development and Demonstration (SDD) because the projects support the SDD phase of several munitions related items and functions.

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Initiate/continue/complete design/development of various CDRS projects	0.006	0.006	0.006	0.006
(U) Provide container design expertise and technical support to programs such as BLU-122/A, MALD, P5 CTS, Joint Standoff Weapon, Munitions Material Handling Equipment, and Small Diameter Bomb	0.006	0.006	0.006	0.006
(U) Manage and operate the CDRS database and support service	0.125	0.129	0.134	0.142
(U) Total Cost	0.137	0.141	0.146	0.154

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<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>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) N/A										

(U) **D. Acquisition Strategy**

Containers is a program of continuing effort throughout the year, mostly to support the Tri-Service Container Design and Retrieval System (CDRS). The purpose of this SDRS is to share ideas and standardize munitions containers throughout the Services.

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Development

PROJECT NUMBER AND TITLE

5613 Containers

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &</u> <u>Type</u>	<u>Performing</u> <u>Activity &</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2004</u> <u>Cost</u>	<u>FY 2004</u> <u>Cost</u>	<u>FY 2004</u> <u>Award</u> <u>Date</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</u>	<u>FY 2006</u> <u>Cost</u>	<u>FY 2006</u> <u>Award</u> <u>Date</u>	<u>FY 2007</u> <u>Cost</u>	<u>FY 2007</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
(U) <u>Support</u> AAC/YBC (Program Office)	In-house	Eglin AFB, FL	0.932	0.122	N/A	0.124	N/A	0.128	N/A	0.134	N/A	Continuing	TBD	TBD
Subtotal Support			0.932	0.122		0.124		0.128		0.134		Continuing	TBD	TBD
Remarks:														
(U) <u>Product Development</u> J.E.Sverdrup	FFP	Eglin AFB, FL	1.589	0.015	Feb-04	0.017	Feb-05	0.018	Feb-06	0.020	Feb-07	Continuing	TBD	TBD
Subtotal Product Development			1.589	0.015		0.017		0.018		0.020		Continuing	TBD	TBD
Remarks:														
(U) Total Cost			2.521	0.137		0.141		0.146		0.154		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604602F Armament/Ordnance
Development

PROJECT NUMBER AND TITLE

5613 Containers

The Munitions Container Program is a continuing projects that supports container standardization activities/meetings throughout the year.

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Exhibit R-4a, RDT&E Schedule Detail

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05 System Development and Demonstration (SDD)

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Development

PROJECT NUMBER AND TITLE

5613 Containers

(U) Schedule ProfileFY 2004FY 2005FY 2006FY 2007

(U) Support CDRS Activities/Meetings

1-4Q

1-4Q

1-4Q

1-4Q