



Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-357



Large Aircraft Infrared Countermeasures (LAIRCM)

As of FY 2011 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

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Common Acronyms and Abbreviations for MDAP Programs

Acq O&M - Acquisition-Related Operations and Maintenance
ACAT - Acquisition Category
ADM - Acquisition Decision Memorandum
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
\$B - Billions of Dollars
BA - Budget Authority/Budget Activity
Blk - Block
BY - Base Year
CAPE - Cost Assessment and Program Evaluation
CARD - Cost Analysis Requirements Description
CDD - Capability Development Document
CLIN - Contract Line Item Number
CPD - Capability Production Document
CY - Calendar Year
DAB - Defense Acquisition Board
DAE - Defense Acquisition Executive
DAMIR - Defense Acquisition Management Information Retrieval
DoD - Department of Defense
DSN - Defense Switched Network
EMD - Engineering and Manufacturing Development
EVM - Earned Value Management
FOC - Full Operational Capability
FMS - Foreign Military Sales
FRP - Full Rate Production
FY - Fiscal Year
FYDP - Future Years Defense Program
ICE - Independent Cost Estimate
IOC - Initial Operational Capability
Inc - Increment
JROC - Joint Requirements Oversight Council
\$K - Thousands of Dollars
KPP - Key Performance Parameter
LRIP - Low Rate Initial Production
\$M - Millions of Dollars
MDA - Milestone Decision Authority
MDAP - Major Defense Acquisition Program
MILCON - Military Construction
N/A - Not Applicable
O&M - Operations and Maintenance
ORD - Operational Requirements Document
OSD - Office of the Secretary of Defense
O&S - Operating and Support
PAUC - Program Acquisition Unit Cost

PB - President's Budget
PE - Program Element
PEO - Program Executive Officer
PM - Program Manager
POE - Program Office Estimate
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
SCP - Service Cost Position
TBD - To Be Determined
TY - Then Year
UCR - Unit Cost Reporting
U.S. - United States
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

Program Information

Program Name

Large Aircraft Infrared Countermeasures (LAIRCM) (LAIRCM)

DoD Component

AirForce

Responsible Office

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References

SAR Baseline (Production Estimate)

FY 2009 President's Budget dated February 2008

Approved APB

Air Force Acquisition Executive (AFAE) Approved Acquisition Program Baseline (APB) dated August 24, 2009

Mission and Description

Large Aircraft Infrared Countermeasures (LAIRCM) provides defense for large aircraft from widespread and growing threat of man-portable air defense systems (MANPADs), shoulder fired and mobile launched surface-to-air missiles. The LAIRCM system autonomously detects, declares, tracks, and jams infrared (IR) threat missiles to create a miss, resulting in aircrew and aircraft protection. The system has no interoperability requirements outside the platform on which it is installed. The LAIRCM system consists primarily of four subsystem components: a System Processor (SP), a Control Indicator Unit (CIU), an AAR-54 Missile Warning System (MWS) and a laser transmitter assembly. Initially the program used the Small Laser Transmitter Assembly (SLTA); however, most new installations incorporate the improved transmitter assembly termed the Guardian Laser Transmitter Assembly (GLTA). The GLTA has the following advantages over the SLTA: reduced turret procurement cost; significant reliability improvement; increased energy on target; and weight and drag reductions.

Executive Summary

The LAIRCM Acquisition Program Baseline (APB) was approved August 24, 2009. The LAIRCM APB includes only Research, Development, Test and Evaluation funding. Production and operations and maintenance funding is provided by the separate platforms and Air Force Materiel Command working capital funds, respectively. They are not included in this Selected Acquisition Report.

As of December 2009 the LAIRCM system has been installed on 185 Mobility Air Force (MAF) and Air Force Special Operations Command (AFSOC) aircraft. Depending on platform modification schedules, an average of five aircraft are modified per month.

The LAIRCM program office is working to improve the overall system sustainment strategy by improving reliability, affordability & maintainability (RAM). The organization has implemented several actions to improve all system components. Our Failure Reporting Analysis and Corrective Action System (FRACAS) database allows us to review failure data to identify trends, determine root cause and identify corrective actions. In the past year the Small Laser Transmitter Assembly (SLTA) Mean Time Between Removal (MTBR) has improved from 600 to over 700 hours due to firmware and software fixes identified from FRACAS data.

In 2010 the program office is focusing in three areas: (1) award a follow-on production contract in April 2011; (2) complete Next Generation Missile Warning System (NexGen MWS) Developmental and Operation Testing by September 2010 and Initial Operational Test and Evaluation by second quarter Fiscal Year 2011 and (3) LAIRCM security requirements as part of the LAIRCM System Processor Replacement (LSPR) and Mid-Life Upgrade (MLU).

There are no significant software issues with the program at this time.

Threshold Breaches

APB Breaches

Schedule		<input type="checkbox"/>
Performance		<input type="checkbox"/>
Cost	RDT&E	<input type="checkbox"/>
	Procurement	<input type="checkbox"/>
	MILCON	<input type="checkbox"/>
	Acq O&M	<input type="checkbox"/>
O&S Cost		<input type="checkbox"/>
Unit Cost	PAUC	<input type="checkbox"/>
	APUC	<input type="checkbox"/>

Nunn-McCurdy Breaches

Current UCR Baseline

PAUC	None
APUC	None

Original UCR Baseline

PAUC	None
APUC	None

Schedule



Schedule Events				
Events	SAR Baseline Production Estimate	Current APB Production Objective/Threshold	Current Estimate	
LAIRCM Basic				
Milestone B	Sep 2001	Sep 2001	Sep 2001	Sep 2001
DT&E Complete	Jan 2002	Jan 2002	Jan 2002	Jan 2002
Milestone C	Aug 2002	Aug 2002	Aug 2002	Aug 2002
IOT&E Complete	Mar 2004	Mar 2004	Mar 2004	Mar 2004
RAA Complete	Jul 2004	Jul 2004	Jul 2004	Jul 2004
NexGen				
NexGen Milestone B	N/A	Jun 2004	Jun 2004	Jun 2004
NexGen DT&E Complete	N/A	Aug 2006	Aug 2006	Aug 2006
NexGen Milestone C	N/A	May 2008	May 2008	May 2008
NexGen DT/OT Complete	N/A	Sep 2010	Mar 2011	Sep 2010

Change Explanations

None

Acronyms and Abbreviations

DT&E - Developmental Test and Evaluation

DT/OT - Developmental Test/Operational Test

IOT&E - Initial Operational Test and Evaluation

RAA - Required Assets Available

Performance

Performance Characteristics				
SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Demonstrated Performance	Current Estimate
Operability				
N/A	System shall not interfere with flight characteristics or mission requirements	System shall not interfere with flight characteristics or mission requirements	TBD	System shall not interfere with flight characteristics or mission requirements

Classified Performance information is provided in the classified annex to this submission.

Requirements Reference

- USAF and AMC Mission Need Statements for Advanced Infrared Countermeasures (IRCM) 014-92, March 26, 1993
- USAF Multi-Command (Air Mobility Command (AMC), Air Combat Command (ACC), Air Force Special Operations - Command [AFSOC]) Operational Requirements Document (ORD) 314-92, August 3, 1998
- AMC LAIRCM Phase I ORD Annex validated by the Air Force Requirements Oversight Council (AFROC) on January 25, 2001
- AMC Combat Mission Needs Statement (CMNS) IRCM capability November 2, 2002

Change Explanations

None

Notes

Performance characteristics reported in the Selected Acquisition Report (SAR) Baseline and Current Estimate in the classified annex reflect Key Performance Parameter (KPP) parameters from LAIRCM Operational Requirements Document (ORD) (AMC/ACC/AFSOC) #314-92, August 3, 1998, AMC ORD Annex validated by AFROC, January 25, 2001 and AFSOC Directional Infrared Countermeasures (DIRCM) ORD, February 28, 1994. The LAIRCM Acquisition Program Baseline (APB) was approved August 24, 2009.

Track to Budget

RDT&E

Appn	BA	PE
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Air Force 3600 07 0401134F

Project	Name
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674942 LAIRCM

Cost and Funding

Cost Summary

Total Acquisition Cost							
Appropriation	BY 2008 \$M			BY 2008 \$M	TY \$M		
	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Production Estimate	Current APB Production Objective	Current Estimate
RDT&E	383.6	457.0	500.6	438.8	366.0	438.6	415.4
Procurement	0.0	0.0	--	0.0	0.0	0.0	0.0
Flyaway	--	--	--	0.0	--	--	0.0
Recurring	--	--	--	0.0	--	--	0.0
Non Recurring	--	--	--	0.0	--	--	0.0
Support	--	--	--	0.0	--	--	0.0
Other Support	--	--	--	0.0	--	--	0.0
Initial Spares	--	--	--	0.0	--	--	0.0
MILCON	0.0	0.0	--	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	--	0.0	0.0	0.0	0.0
Total	383.6	457.0	N/A	438.8	366.0	438.6	415.4

Total Quantity				
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate	
RDT&E		8	8	8
Procurement		0	0	0
Total		8	8	8

Quantity Notes

Unit of measure is one aircraft modified with the LAIRCM system. The eight (8) development deliveries consist of (2) C-17s, (1) C-130H, (1) C-5, (1) C-130J, (1) AC-130H, (2) additional AFSOC C-130 variants.

Cost and Funding

Funding Summary

Appropriation Summary									
FY 2011 President's Budget / December 2009 SAR (TY\$ M)									
Appropriation	Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	To Complete	Total
RDT&E	363.9	26.8	17.2	7.5	0.0	0.0	0.0	0.0	415.4
Procurement	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2011 Total	363.9	26.8	17.2	7.5	0.0	0.0	0.0	0.0	415.4
PB 2009 Total	332.1	12.1	7.1	7.3	7.4	0.0	0.0	0.0	366.0
Delta	31.8	14.7	10.1	0.2	-7.4	0.0	0.0	0.0	49.4

Funding Notes

The LAIRCM program is a Research, Development, Test and Evaluation effort only. Production funding is provided by the platforms and is not included in this Selected Acquisition Report.

Quantity Summary										
FY 2011 President's Budget / December 2009 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	To Complete	Total
Development	8	0	0	0	0	0	0	0	0	8
Production	0	0	0	0	0	0	0	0	0	0
PB 2011 Total	8	0	0	0	0	0	0	0	0	8
PB 2009 Total	8	0	0	0	0	0	0	0	0	8
Delta	0	0	0	0	0	0	0	0	0	0

Cost and Funding

Annual Funding By Appropriation

Annual Funding							
3600 RDT&E Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2002	--	--	--	--	--	--	51.5
2003	--	--	--	--	--	--	42.5
2004	--	--	--	--	--	--	48.4
2005	--	--	--	--	--	--	85.7
2006	--	--	--	--	--	--	61.3
2007	--	--	--	--	--	--	37.2
2008	--	--	--	--	--	--	14.8
2009	--	--	--	--	--	--	22.5
2010	--	--	--	--	--	--	26.8
2011	--	--	--	--	--	--	17.2
2012	--	--	--	--	--	--	7.5
Subtotal	8	--	--	--	--	--	415.4

Annual Funding 3600 RDT&E Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	BY 2008 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2002	--	--	--	--	--	--	58.7
2003	--	--	--	--	--	--	47.8
2004	--	--	--	--	--	--	53.1
2005	--	--	--	--	--	--	91.7
2006	--	--	--	--	--	--	63.6
2007	--	--	--	--	--	--	37.6
2008	--	--	--	--	--	--	14.7
2009	--	--	--	--	--	--	22.0
2010	--	--	--	--	--	--	26.0
2011	--	--	--	--	--	--	16.5
2012	--	--	--	--	--	--	7.1
Subtotal	8	--	--	--	--	--	438.8

Unit of measure is one aircraft modified with the LAIRCM system. The eight (8) development deliveries consist of (2) C-17s, (1) C-130H, (1) C-5, (1) C-130J, (1) AC-130H, (2) additional AFSOC C-130 variants.

Low Rate Initial Production

LAIRCM is an Research, Development, Test, and Evaluation (RDT&E) program and, as such, has no Low Rate Initial Production (LRIP) activities, as those are the purview of the individual platforms.

Foreign Military Sales

Country	Date of Sale	Quantity	Total Cost \$M	Description
Germany	4/24/2009	2	81.8	Will modify two HoS Airbus A340 aircraft.
Saudi Arabia	3/8/2007	1	56.3	Will modify one HoS Boeing 747 aircraft.
Bahrain	5/18/2004	1	43.3	Will modify one Head of State (HoS) Boeing 747 aircraft.

Notes

Nuclear Costs

None

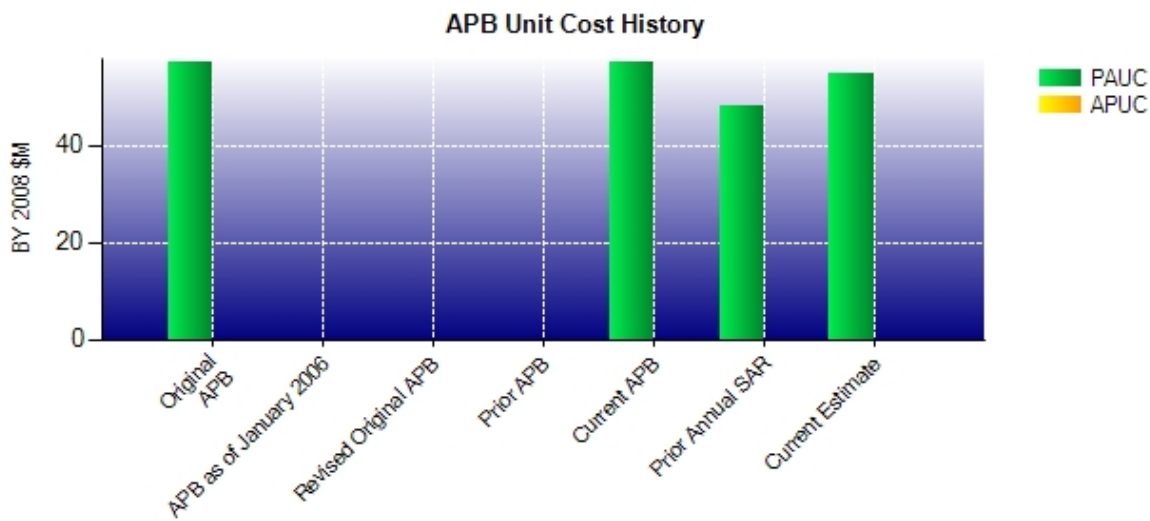
Unit Cost

Unit Cost Report

Item	BY 2008 \$M	BY 2008 \$M	% Change
	Current UCR Baseline (Aug 2009 APB)	Current Estimate (Dec 2009 SAR)	
Program Acquisition Unit Cost			
Cost	457.0	438.8	
Quantity	8	8	
Unit Cost	57.125	54.850	-3.98
Average Procurement Unit Cost			
Cost	0.0	0.0	
Quantity	0	0	
Unit Cost	--	--	--

Item	BY 2008 \$M	BY 2008 \$M	% Change
	Original UCR Baseline (Aug 2009 APB)	Current Estimate (Dec 2009 SAR)	
Program Acquisition Unit Cost			
Cost	457.0	438.8	
Quantity	8	8	
Unit Cost	57.125	54.850	-3.98
Average Procurement Unit Cost			
Cost	0.0	0.0	
Quantity	0	0	
Unit Cost	--	--	--

Unit Cost History



Item	Date	BY 2008 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	Aug 2009	57.125	N/A	54.825	N/A
APB as of January 2006	N/A	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	N/A	N/A	N/A	N/A	N/A
Current APB	Aug 2009	57.125	N/A	54.825	N/A
Prior Annual SAR	Dec 2007	47.950	N/A	45.750	N/A
Current Estimate	Dec 2009	54.850	N/A	51.925	N/A

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY \$M)									
Initial PAUC Production Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
45.750	-0.338	0.000	0.000	0.000	6.513	0.000	0.000	6.175	51.925

Current SAR Baseline to Current Estimate (TY \$M)									
Initial APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
0.000	--	--	--	--	--	--	--	--	0.000

An APUC Unit Cost History is not available, since no Initial APUC Estimate had been calculated due to a lack of defined quantities.

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone A		N/A	N/A	N/A
Milestone B		N/A	N/A	Sep 2001
Milestone C		N/A	N/A	Aug 2002
IOC		N/A	N/A	Jul 2004
Total Cost (TY \$M)	N/A	N/A	366.0	415.4
Total Quantity	N/A	N/A	8	8
PAUC	N/A	N/A	45.750	51.925

Cost Variance

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	366.0	--	--	366.0
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	--	--	--	--
Other	--	--	--	--
Support	--	--	--	--
Subtotal	--	--	--	--
Current Changes				
Economic	-2.7	--	--	-2.7
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+52.1	--	--	+52.1
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+49.4	--	--	+49.4
Total Changes	+49.4	--	--	+49.4
Current Estimate	415.4	--	--	415.4

Summary BY 2008 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	383.6	--	--	383.6
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	--	--	--	--
Other	--	--	--	--
Support	--	--	--	--
Subtotal	--	--	--	--
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+55.2	--	--	+55.2
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+55.2	--	--	+55.2
Total Changes	+55.2	--	--	+55.2
Current Estimate	438.8	--	--	438.8

Previous Estimate: December 2007

RDT&E	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices (Economic)	N/A	-2.7
Adjustment for current and prior escalation (Estimating)	+2.0	+2.0
Revised estimate to add USSOCOM funding for LAIRCM NexGen Missile Warning System (MWS) development to LAIRCM baseline (Estimating)	+43.2	+40.2
Extended NexGen MWS source selection drove cost increase (Estimating)	+5.7	+5.6
Real world operational tempo and hardware changes delay design decision and aircraft modification induction (Estimating)	+10.9	+11.4
Decrease due to changes in funding profile (Estimating)	-6.6	-7.1
RDT&E Subtotal	+55.2	+49.4

Contracts

Contract Identification

Appropriation: RDT&E
Contract Name: Guardian Laser Transmitter Assembly Development
Contractor: Northrop Grumman Defensive Systems Division
Contractor Location: Rolling Meadows, IL 60008-1098
Contract Number: FA8625-05-C-6459
Contract Type: Cost Plus Fixed Fee (CPFF), Time and Materials (TM)
Award Date: February 04, 2005
Definitization Date: June 30, 2006

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
23.7	N/A	N/A	28.2	N/A	N/A	28.2	28.2

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to

Contract Variance			
Item	Cost Variance		Schedule Variance
Cumulative Variances To Date	+1.9		0.0
Previous Cumulative Variances	0.0		-1.3
Net Change	+1.9		+1.3

Cost and Schedule Variance Explanations

General Contract Variance Explanation

Net favorable cost and schedule variance is primarily due to an underrun in the Cost Plus Fixed Fee (CPFF) build of Guardian Laser Tracker Assembly (GLTA) hardware.

Notes

The difference in the original target price and the current target price is due to contract definitization, additional testing for environmental qualification, additional spare equipment, and addition of repair of test assets.

The contract is more than 90% complete and will no longer be reported.

Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	4	5	8	62.50%
Production	0	0	0	--
Total Program Quantity Delivered	4	5	8	62.50%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	415.4	Years Appropriated	9
Expended to Date	331.1	Percent Years Appropriated	81.82%
Percent Expended	79.71%	Appropriated to Date	390.7
Total Funding Years	11	Percent Appropriated	94.05%

Unit of measure is one aircraft modified with the LAIRCM system. The eight (8) development deliveries consist of (2) C-17s, (1) C-130H, (1) C-5, (1) C-130J, (1) AC-130H, (2) additional AFSOC C-130 variants.

Operating and Support Cost

Assumptions and Ground Rules

LAIRCM is a Research, Development, Test and Evaluation program only. The host platform bases pay Operating and Support costs based on usage and depot repair rates. There is no antecedent system for LAIRCM.

Cost Estimate Reference:

None

Sustainment Strategy:

None

Antecedent Information:

None

Unitized O&S Costs BY2008 \$K		
Cost Element	LAIRCM	No Antecedent (Antecedent)
Mission Pay & Allowance	--	--
Unit Level Consumption	--	--
Intermediate Maintenance	--	--
Depot Maintenance	--	--
Contractor Support	--	--
Sustaining Support	--	--
Indirect	--	--
Other	--	--
Total	--	--

Unitized Cost Comments:

None

Item	Total O&S Cost \$M			
	LAIRCM		No Antecedent (Antecedent)	
	Current Production APB Objective/Threshold	Current Estimate		
Base Year	0.0	0.0	N/A	N/A
Then Year	0.0	N/A	N/A	N/A

Total O&S Cost Comment

None

Disposal Estimate Details

Date of Estimate:

Source of Estimate:

Disposal/Demilitarization Total Cost (BY 2008 \$M):