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**BALLISTIC MISSILE DEFENSE SYSTEM (BMDS)
ACCOUNTABILITY REPORT (BAR) for 2010 (U)**

(U) In accordance with the Fiscal Year (FY) 2002-2008 National Defense Authorization Acts, the Missile Defense Agency (MDA) presents the BMDS Accountability Report (BAR) for 2010 to Congress to enhance the transparency, accountability, and oversight of the BMDS program.



PATRICK J. O'REILLY
Lieutenant General, USA
Director

25 June '10

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Missile Defense Agency (U)

Ballistic Missile Defense System (BMDS) Accountability Report (BAR) For 2010 (U)



June 2010 (U)

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1.0 Introduction (U)

(U) In its annual BMDS Accountability Report (BAR), the Missile Defense Agency (MDA) presents baseline parameters used to guide and track development of ballistic missile defense capabilities. The Agency also explains any variances from established schedule, technical, and resource baselines.

(U) In February 2010, MDA announced establishment of an Acquisition Oversight Process that leverages the BMDS baselines to better translate capability needs and technology opportunities into stable, affordable, and well-managed BMDS acquisitions. Through this process, the Agency began reviews of its ongoing technology and product development programs to (1) place programs in the correct development phase with established baselines; and (2) identify program plans for demonstrating readiness to proceed to the next acquisition phase. This report presents the baselines approved through such reviews. Any variances from these baselines will be identified in future BARs.

2.0 Background (U)

(U) According to MDA's charter,¹ the Director of MDA shall:

- (U) Maintain a single development program for all work needed to design, develop, and test an integrated BMDS;
- (U) Develop for fielding a useful military capability to detect, track, intercept, and defeat ballistic missiles;
- (U) Plan and execute an evolutionary, capability-based acquisition approach by applying incremental and spiral development consistent with the BMDS Life Cycle Management Process;² and
- (U) Serve as the BMDS Acquisition Executive for the BMDS and elements funded by MDA and exercise all BMDS-related source-selection and milestone decision authorities up to, but not including, production decisions.

(U) Furthermore, the Missile Defense Executive Board (MDEB) will review and make appropriate recommendations to the Under Secretary of Defense for Acquisition, Technology and Logistics and MDA's Director regarding the implementation of strategic policies and plans, program priorities, and investment options.³

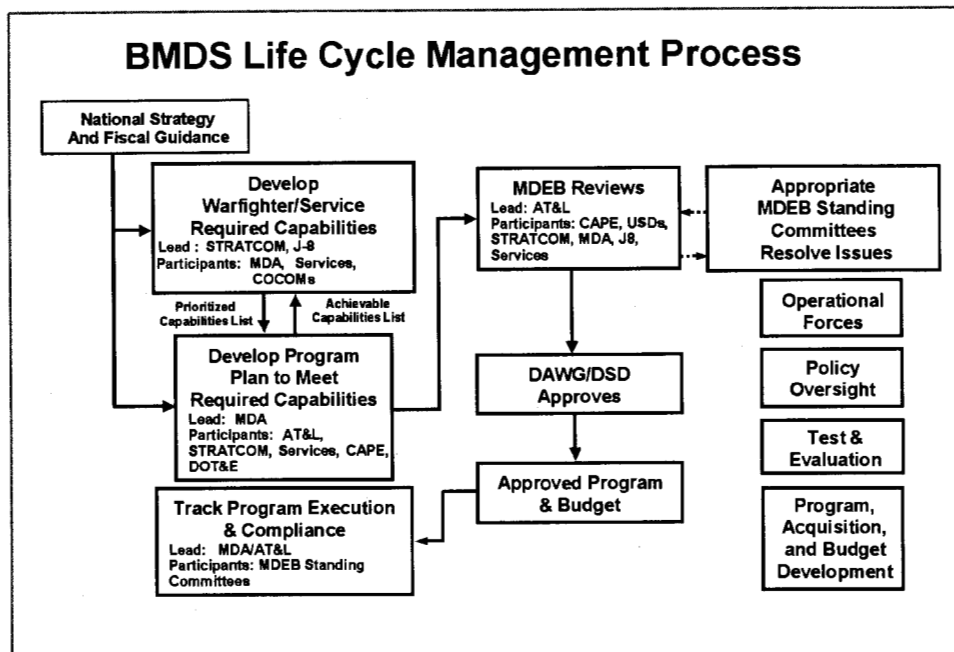
(U) The Warfighter Involvement Process (WIP), MDA's Baseline Phase Reviews and Baseline Configuration Management provide critical inputs to MDA's Director and the MDEB in carrying out their responsibilities. The WIP and the use of baselines to manage BMDS programs directly support the Life Cycle Management Process (see Figure 1).

¹ (U) DoD Directive 5134.09, 17 September 2009.

² (U) As defined in Deputy Secretary of Defense memorandum, dated 25 September 2008.

³ (U) As defined in Deputy Secretary of Defense memorandum, dated 15 March 2007.

Figure 1: BMDS Life Cycle Management Process (FOUO)



⁴ (U) P.L. 111-23, signed into law May 22, 2009.

2.2 Baseline Phase Reviews (U)

(U) MDA's Acquisition Oversight Process was established to add additional rigor and discipline into the Agency's acquisitions to provide better control of BMDS cost, schedule, and technical performance. Key principles of the process are:

- (U) Evolutionary delivery of incremental capability to the Warfighter;
- (U) Distinct and disciplined phases for Materiel Solution Analysis (concept exploration), Technology Development (concept development), Product Development (design and demonstration), Initial Production, and Production ;
- (U) Balancing capability needs and available resources (mature technologies and adequate schedule and funding) at the start of product development; and
- (U) Use of Baseline Phase Reviews to
 - validate BMDS components' contributions to the six BMDS baselines--schedule, technical, test, operational capacity, resource and contract;
 - approve readiness to transition to the next acquisition phase; and
 - review programs with significant deviations from established baselines.

(U) These principles are consistent with Federal statutes and the tenets of the Defense Acquisition System (Department of Defense (DoD) Instruction 5000.02) and acquisition best practices recommended by the U.S. Government Accountability Office (GAO).

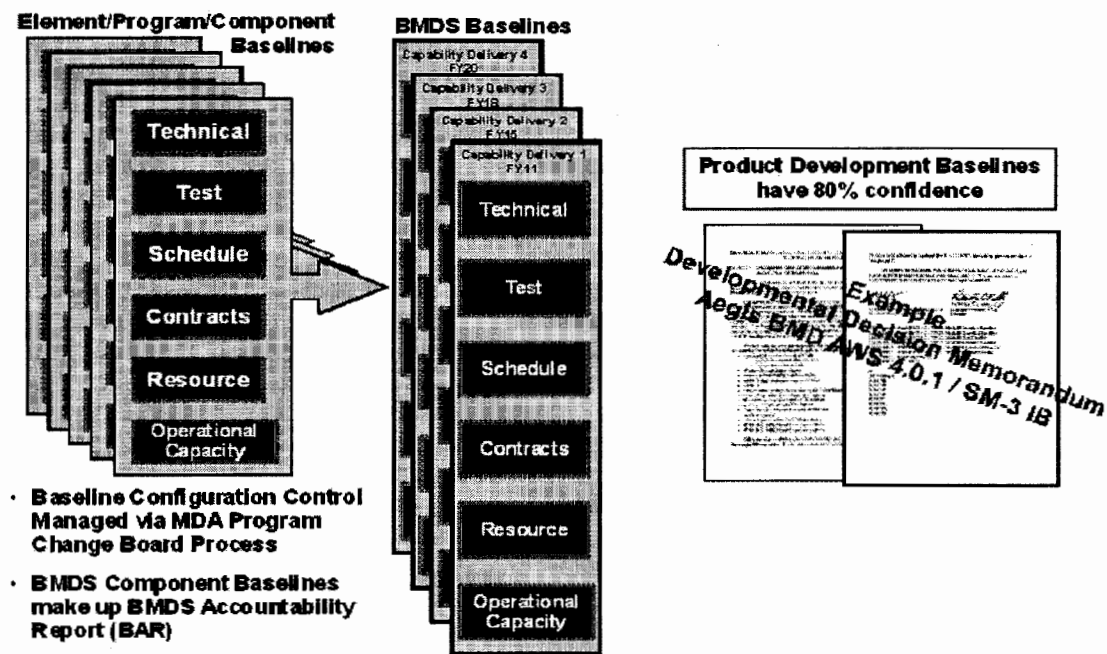
(U) The Agency recognizes three key analysis and development phases: Materiel Solutions Analysis, Technology Development, and Product Development. Because acquisition activity or technology programs prior to the Product Development Phase have greater uncertainties in terms of capability needs and available resources, these activities or programs are not yet components of nor aligned with the BMDS baselines and are generally not included in the BAR. Programs in the Product Development and later phases, however, are more mature. Their six baselines (schedule, technical, test, operational capacity, resource and contract) are included in the BAR. Precision tracking from space (known as Precision Tracking Space System (PTSS)) and enhancements to the SM-3 missile (known as SM-3 IIB) have been included as examples of acquisition activity in the Materiel Solution Analysis Phase. These analysis activities are critical to the BMDS and are developing potential technological solutions to capability shortfalls faced by the future BMDS (e.g., BMDS Phased Adaptive Approach (PAA)). In the future, these activities may provide technological solutions to capability shortfalls and may progress into the Technology Development Phase.

2.3 Baseline Configuration Management (U)

(U) Implementation of Baseline Configuration Management involves multiple steps (see Figure 2).

- (U) Baseline Owners⁵ establish the required content for each baseline. The required content defines the critical milestones and acquisition activity necessary to complete the current acquisition phase. Baseline content must support the overall BMDS baselines.
- (U) Program Elements provide program-specific information to satisfy the defined baseline content and coordinate with the Baseline Owners to ensure the baselines are reasonable and in harmony with overall BMDS baselines. The proposed baselines must also be coordinated, as appropriate, with the Lead Military Service staff.
- (U) Programs entering or already in the Product Development (or later) phase have a Development Decision Memorandum (DDM) signed by MDA's Director and the affected Service Acquisition Executives. The DDMs set forth schedule, technical, test, operational capacity, resource, and contract baselines, as well as program plans for activities needed to demonstrate readiness to proceed to the next acquisition phase.
- (U) Once baselines are established, MDA's Director will review the status of Program Elements' execution to the baselines every quarter.
- (U) Programs experiencing significant deviations from their established baselines may need to reestablish the baselines or review the program's viability to continue.

Figure 2: Managing the BMDS by Baselines (U)



⁵ (U) MDA's Baseline Owners (and their baselines) are: Program Executive for Programs and Integration (schedule); Director for Operations (resource); Director for Engineering (technical and operational capacity); Director for Test (test); and Director for Acquisition (contract).

2.4 Definitions of Baselines (U)

(U) MDA's baselines are expected outcomes that serve as parameters to guide development of ballistic missile defense capabilities. Their implementation enhances the Agency's transparency, accountability, and oversight.

- (U) The *schedule baseline* is a timeline for key product development milestones and tasks, such as key decision points and product deliveries.
- (U) The *technical baseline* is a detailed technical description of the capability being developed and planned improvements over time. The description reflects system requirements and describes how particular capabilities satisfy the Combatant Commanders' Prioritized Capabilities and the key Knowledge Points that must be achieved for continued program development.
- (U) The *test baseline* is a schedule of major flight and ground tests and key modeling and simulation events and the primary goals associated with those tests and events.
- (U) The *operational capacity baseline* is a detailed timeline and set of steps required to certify that BMDS capabilities are ready for operational use, including steps needed for obtaining compliance with information assurance requirements, documenting capabilities and limitations, and completing Warfighter training requirements.
- (U) The *resource baseline* is the expected investment in the delivery of a BMDS product. Resource baselines are represented as Program Acquisition Unit Cost (PAUC), Average Procurement Unit Cost (APUC), and/or Program Acquisition Cost (PAC). (A detailed discussion of the resource baseline methodology is presented in Appendix A.) PAUC and APUC are reported by MDA Program Elements that produce countable weapons, sensors, launch systems, or fire control systems. PAC is reported for programs without definable quantities, such as software development programs. Derived from time-phased cost estimates in then-year dollars, resource baselines are expressed in base year dollars indexed to the year the baseline is presented to the MDA Director for final approval. PAUC is the ratio of development, production and deployment, and military construction costs to the number of operationally configured units produced for testing, qualification, and operations. APUC is the ratio of the production and deployment costs to the number of units delivered for operations. PAC is the sum of development, production and deployment, and military construction costs.
- (U) The *contract baseline* is a timeline for a set of MDA contracts designed to deliver integrated BMDS capabilities. The timeline highlights the steps in the contracting process from Request for Proposals through Proposal Receipt, Negotiations Complete, and Contract Award.

2.5 Definitions of Variances (U)

(U) For the purposes of the BAR, variances are defined as significant deviations (expected or actual) from established BMDS schedule, technical, and resource baselines. Variances are tracked and reported because they reflect directly on how well the Agency is delivering BMDS capabilities to the Warfighter. A *schedule variance* is a delay of six months or more in meeting a current milestone for delivering a BMDS product or 12 months or more in

meeting the original delivery milestone. A *technical variance* is a shortfall in achieving a product's expected functionality that can significantly impact the performance of the BMDS. A *resource variance* is a cost increase of 10 percent or more when compared to the original resource baseline for a BMDS product.

3.0 Baselines for BMDS Products (U)

(U) This section presents approved Development Decision Memoranda, which include specific guidance and activities directed to occur during the remainder of the current acquisition phase; schedule, technical, test, operational capacity, resource and contract baselines; and exit criteria to satisfy for demonstrating readiness to transition to the next acquisition phase. It also presents the most current Earned Value Management (EVM) data for major contracts supporting BMDS product development. Monthly EVM data are used to show trends in cost and schedule performance on current work under contract.

(U) In coming months, the resolution of two factors is likely to affect the baselines presented here. The first factor is the need for DoD departments and agencies to significantly improve the efficiencies of business operations per guidance from the Secretary of Defense. Analyses are ongoing to identify these efficiencies during development of the President's Budget for FY 2012 (PB 12). The second factor is the opportunity to increase Aegis BMD's raid size capacity.⁶ In its PB 12 submission, MDA proposes investments in developing capabilities to achieve this goal and will work with the Navy on any proposed impacts.

(U) Section 3.0 is organized by Program Element as follows: C2BMC, THAAD and its associated radar, AN/TPY-2; Aegis BMD; GMD; SBX; Targets; Israeli Programs; and Materiel Solutions Analysis activities. (Acronyms are listed in Appendix B.)

⁶(S) Raid size capacity (RSC) is the number of warheads that the BMDS can engage for specified engagement scenarios, which vary depending on such factors as threat trajectories, launch intervals, and adversary negation of BMDS assets. The RSC limit may occur due to many factors, including when weapons inventory is exhausted and when system resources, such as communications links, are saturated.

Appendix A: Resource Baseline Methodology (U)

(U) The *resource baseline* is the expected investment in acquiring a capability and includes all costs associated with delivery of a BMDS product. For programs containing more than one type of reportable unit, (e.g. missile, sensors, launchers, and fire control systems), common costs are allocated to the reportable units on a pro-rated basis. These are called allocated costs. Common allocated costs can include such costs as Program Management, Systems Engineering, and System Test and Evaluation.

(U) The resource baseline is represented as Program Acquisition Unit Cost (PAUC), Average Procurement Unit Cost (APUC), and/or Program Acquisition Cost (PAC). PAUC and APUC are reported by MDA Program Elements that produce countable weapons, sensors, launch systems, or fire control systems. PAC is reported by Program Elements that do not produce quantifiable units. Resource baselines are derived from time-phased cost estimates in then-year dollars jointly approved by MDA's Program Directors and the Director of Cost Estimating and Analysis.⁷ The baselines are expressed in base year dollars indexed to the year resource baselines are approved.

(U) PAUC is a ratio of acquisition cost to number of units. The numerator of the ratio is the total program acquisition costs defined as the sum of the Development (Research Development, Test and Evaluation (RDT&E) Appropriation), Production and Deployment (Procurement Appropriation), and Military Construction (MILCON Appropriation) costs. The denominator of the ratio is the total number of operationally configured units produced for testing, qualification, and operations. APUC is a ratio of the procurement cost to number of units. The two business rules for reporting APUC, depending on whether RDT&E or Procurement funding is used to acquire units produced for operations, are:

- (U) If Procurement Appropriations funding is used to deliver operational units, APUC is the ratio of Procurement costs divided by the number of Procurement funded units. Test and qualification units are included only if Procurement funds are used to acquire those units. If a program has used both RDT&E and Procurement appropriations to purchase operationally configured units, only those units purchased with the Procurement Appropriation will be used to compute APUC.
- (U) For some MDA programs, MDA is authorized to deliver operational capability using only RDT&E funding. For these instances, APUC is calculated by a ratio of the RDT&E funded cost estimate for delivery of the operational units divided by the quantity of operational units.

(U) PAC is used for system components that do not produce quantifiable units. PAC is the sum of Development (RDT&E Appropriation), Production and Deployment (Procurement Appropriation), and Military Construction (MILCON Appropriation) costs.

⁷ (U) Cost baselines for targets are treated differently because of uncertainty about the quantity of targets needed for testing beyond the FYDP period. As a result, "to complete" costs are not included in cost baselines for targets.

Appendix B: Acronyms (U)

A	
A3	Arrow-3 (U)
AA	Aegis Ashore (U)
AACTV	Aegis Ashore Control Test Vehicle (U)
AAFTM	Aegis Ashore Flight Test Mission (U)
AAMDC	Army Air Missile Defense Command (U)
AAW	Anti-Air Warfare (U)
ABIR	Airborne Infra-Red (U)
ABP	Airborne Processor (U)
ABS	American Bureau of Shipping (U)
ACL	Achievable Capabilities List (U)
ACS	Attitude Control System (U)
ACWP	Actual Cost of Work Performed (U)
ADSI	Air Defense System Integrator (U)
ALO	Aegis Light Off (U)
ATRC	Aegis Training and Readiness Center (U)
AUR	All Up Round (U)
AWS	AEGIS Weapon System (U)
AFB	Air Force Base (U)
AMD	Air & Missile Defense (U)
AN/TPY-2	Army Navy/Transportable Radar Surveillance – Model 2 (U)
AOR	Area of Responsibility (U)
APUC	Average Procurement Unit Cost (U)
ARAV	Aegis Readiness Assessment Vehicle (U)
ASB	Acquisition Strategy Board (U)
AST	Arrow System Test (U)
ATEC	Army Test and Evaluation Command (U)
AUR	All Up Round (U)
AWS	Aegis Weapon System (U)
B	
BLD	Build (U)
BSP	BMD Signal Processor (U)
BAR	BMDS Accountability Report (U)
BCWP	Budgeted Cost of Work Performed (U)
BCWS	Budgeted Cost of Work Scheduled (U)
BETD	Best Estimate Test Date (U)
BLOS	Beyond Line of Sight (U)
BMC	Battle Management Center (U)
BMD	Ballistic Missile Defense (U)
BMDS	Ballistic Missile Defense System (U)
BOA	BMDS Overhead Persistent Infrared Architecture (U)
BOD	Board of Directors (U)
BSC	Battery Support Center (U)
BSFO	Blue Sparrow Fly-Out (U)
BSP	BMD Signal Processor (U)
BVT	Booster Vehicle Test (U)
BY	Base Year (U)

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C	
C2BMC	Command and Control, Battle Management and Communications (U)
C4	Command, Control, Communications, and Computers (U)
CAAT	Contingency Analysis and Activation Team (U)
CAPE	Cost Assessment and Program Evaluation (U)
CAR	Capability Assessment Report (U)
CARD	Cost Analysis Requirements Description (U)
CCC	Core Completion Contract (U)
CCLS	Consolidated Contractor Logistics Support (U)
CD	Capability Delivery (U)
CDR	Critical Design Review (U)
CDS	Common Display System (U)
CDU	Cobra Dane Upgrade (U)
CEC	Critical Engagement Conditions (U)
CEI	Capability Enhanced I (U)
CEII	Capability Enhanced II (U)
CERT	Certification (U)
CFE	Contractor Furnished Equipment (U)
CG	Guided Missile Cruiser (U.S. Navy) (U)
CLS	Contractor Logistics Support (U)
CM	Countermeasure (U)
CMAV	Continuous Maintenance Availability (U)
CNIP	C2BMC Network Interface Processor (U)
CNT	Control Navigation Test (U)
COCOM	Combatant Commander (U)
CONOPS	Concept of Operations (U)
COPS	Constellation Operations (U)
CP	Computer Program (U)
CPAF	Cost Plus Award Fee (U)
CPAP	Construction Plans and Profiles (U)
CPD	Capability Production Document (U)
CPIF	Cost Plus Incentive Fee (U)
CPR	Cost Performance Report (U)
CPS	Capability Planning Specification (U)
CR	Capability Release (U)
CS	Combat System (U)
CSEDS	Combat System Engineering Development Site (U)
CSSQT	Combat System Ships Qualification Trials (U)
CTL	Critical Task List (U)
CTTO	Concurrent Test, Training, and Operations (U)
CTV	Control Test Vehicle (U)
CV	Cost Variance (U)
CX	Common X-band radar software (U)
CY	Calendar Year (U)
D	
DA	Defended Area (U)
DACS	Divert and Attitude Control System (U)
DBR	Developmental Baseline Review (U)
DCMA	Defense Contract Management Agency (U)

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DDG	Guided Missile Destroyer (U.S. Navy) (U)
DDM	Development Decision Memorandum (U)
DDR	Designated Defended Region (U)
DoD	Department of Defense (U)
DOT&E	Director, Operational Test and Evaluation (U)
DRS	DRS Technologies (U)
CNT	Control Navigation Test (U)
DSWS	David's Sling Weapon System (U)
DT	Developmental Test (U)
DTC	Development Test Command (U)
DTDP	Developmental Test Design Plan (U)
DVT	Design Verification Test (U)
E	
EAC	Estimate at Completion (U)
ECD	Early Capability Delivery (U)
ECP	Engineering Change Proposal (U)
EDM	Engineering Design Module (U)
EKP	EC2BMC Knowledge Point (U)
ECL	Equipment Component List (U)
EICO	Element Integration & Check Out (U)
EKV	Exoatmospheric Kill Vehicle (U)
E-LRALT	Extended Long Range Air Launch Target
EMD	Engineering Manufacturing Development (U)
EME	Empirical Measurement Events (U)
eMRBM	Extended Medium Range Ballistic Missile (U)
EMRL	Engineering Manufacturing Readiness Levels (U)
ER4	Engineering Release - 4 (U)
ES	En Shemer (U)
ESL	External Sensors Laboratory (U)
ET	Embedded Test (U)
ETEDDS	End-to-End Distributed Development System (U)
ET&E	Engineering Test & Evaluation (U)
ETEDDS	End-to-end Distributed Development System (U)
EUCM	U.S. European Command (U)
EVM	Earned Value Management (U)
F	
FAU/OP	Fleet Avionics Upgrade/Obsolescence Program (U)
FBM	Forward-Based Mode (U)
FBX-T	Forward-Based X-Band (Radar) Transportable (U)
FCE	Fast CAAT East (U)
FDE	Force Developmental Experimentation (U)
FFP	Firm Fixed Price (U)
FGA	Fort Greely, Alaska (U)
FMA	Foreign Military Acquisition (U)
FMC	Full Mission Capable (U)
FOC	Full Operational Capability (U)
FOUO	For Official Use Only (U)
FPA	Focal Plane Array (U)
FPI	Fixed Price Incentives (U)
FQT	Functional / Formal Qualification Test (U)
FS	Fixed Site (U)

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FTF	Flexible Target Family (U)
FTG	Flight Test Ground Based Interceptor (U)
FTM	Flight Test Standard Missile (U)
FTR	Flight Test Round (U)
FTT	Flight Test THAAD Interceptor (U)
FTX	Flight Test Other (U)
FY	Fiscal Year (U)
FYDP	Future Years Defense Program (U)
G	
GAO	Government Accountability Office (U)
GBI	Ground-Based Interceptor (U)
GCCS	Global Command and Control System (U)
GCN	GMD Communications Network (U)
GCS	Ground Control Station (U)
GEP	Ground Entry Point (U)
GEM	Global Engagement Manager (U)
GFC	GMD Fire Control (U)
GFE	Government Furnished Equipment (U)
GGT	Government Ground Test (Environment) (U)
GMD	Ground-based Midcourse Defense (U)
GOT	Guidance Object Track (U)
GROW	Generic Rest of World (U)
GS	Ground Systems (U)
GSE	Ground Support Equipment (U)
GT	Ground Test (U)
GTD	Ground Test Distributed (U)
GTI	Ground Test Integrated (U)
GTX	Ground Test Other (U)
H	
H&T	Humidity & Temperature (U)
HC	Hazard Classification (U)
HN	Host Nation (U)
HPLUS	High Performance Liquid Upper Stage (U)
HTK	Hit to Kill (U)
HTV	Hypersonic Technology Vehicle (U)
HWIL	Hardware-In-The-Loop (U)
I	
IAMD	Integrated Air and Missile Defense (U)
IAW	In Accordance With (U)
IBMP	Integrated Ballistic Missile Picture (U)
IBR	Integrated Baseline Review (U)
IDT	In-Flight Interceptor Communication System Data Terminal (U)
IMDO	Israel Missile Defense Organization (U)
IMTP	Integrated Master Test Plan (U)
INCO	Installation & Checkout (U)
IPD	Initial Production Decision (U)
IPR	In-Progress Review (U)
ICA	Industrial Capabilities Assessment (U)
ICBM	Intercontinental Ballistic Missile (U)
ICE	Independent Cost Estimate (U)
IDIQ	Indefinite Delivery Indefinite Quantity (U)

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IFICS	In-flight Interceptor Communications System (U)
ILS	Integrated Logistics Support (U)
IM	Insensitive Munitions (U)
IMS	Integrated Master Schedule (U)
IOC	Initial Operational Capability (U)
INSURV	Board of Inspection and Survey (U)
IPR	In-Progress Review (U)
IRBM	Intermediate-Range Ballistic Missile (U)
IRPT	Independent Readiness Review Team (U)
ISG	Integration and Synchronization Group (U)
ISTC	Integrated System Test Capability (U)
ISTS	Integrated Simulation Tactical Software (U)
I&T	Integration & Test (U) / Installation & Test (U)
J	
JC	Juniper Cobra (U)
JFTM	Joint Flight Test Standard Missile (U)
JRE	Joint Range Extension (U)
JROC	Joint Requirements Oversight Council (U)
K	
KP	Knowledge Point (U)
KTR	Contractor (U)
KW	Kinetic Warhead (U)
L	
LAD	Launch Area Denied (U)
LCCE	Life Cycle Cost Estimate (U)
LDACS	Lightweight DACS (U)
LKE	USS LAKE ERIE (U)
LOE	Level of Effort (U)
LoR	Launch on Remote (U)
LRALT	Long Range Air Launch Target
LRBM	Long-Range Ballistic Missile (U)
LRS&T	Long-Range Surveillance and Track (U)
LUT	Limited User Test (U)
LV-2	Launch Vehicle -2 (U)
M	
MBRV	Modified Ballistic Missile Re-Entry Vehicle (U)
MDA	Missile Defense Agency (U)
MDEB	Missile Defense Executive Board (U)
MEIT	Multi-Element Integration Testing (U)
MDR	Mission Design Review (U)
MDA	Missile Defense Agency (U)
MILCON	Military Construction (U)
MMR	Multi-Mission Radar (U)
MMSP	Multi-Mission Signal Processor (U)
MRBM	Medium-Range Ballistic Missile (U)
MRL	Manufacturing Readiness Level (U)
MRT	Medium Range Target (U)
MSA	Materiel Solutions Analysis (U)
MSC	Military Sealift Command (U)
N	
N/A	Not Applicable (U)

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NET	New Equipment Training (U)
NJ	New Jersey (U)
NORTHCOM	U.S. Northern Command (U)
NMP	Navy Manning Plan (U)
NSCC	Naval Systems Computer Center (U)
O	
O&M	Operations and Maintenance (U)
O&S	Operations and Support (U) / Operations and Sustainment (U)
OAR	Operational Assessment Report (U)
OPIR	Overhead Persistent Infra-Red (U)
OSM	Objective Sensor Model (U)
OSM-S	Operational Sensor Model – SBX (U)
OT	Operational Test (U)
OTA	Operational Test Agency (U)
OTA	Other Transaction Authority (U)
OTRR	Operational Test Readiness Review (U)
P	
PA	Performance Assessment / Project Agreement (U)
PAA	Phased Adaptive Approach (U)
PAC	Program Acquisition Cost (U)
PACOM	U.S. Pacific Command (U)
PAUC	Program Acquisition Unit Cost (U)
PB	President's Budget (U)
PCB	Program Change Board (U)
PCIL	Peripheral Component Interface Laboratory (U)
PCL	Prioritized Capabilities List (U)
PCNT	Propulsion Control Navigation Test (U)
PDR	Preliminary Design Review (U)
PDRR	Preliminary Design Readiness Review (U)
PER	Program Execution Review (U)
P _{ES}	Probability of Engagement Success (U)
PM	Program Manager (U)
PMB	Performance Management Baseline (U)
PMC	Partial Mission Capability (U)
PMRF	Pacific Missile Range Facility (U)
PoP	Period of Performance (U)
PPU	Prime Power Unit (U)
PRR	Program Requirements Review (U)
PRRA	Production Readiness Risk Assessment (U)
P _K	Probability of Kill (U)
P _{SSK}	Probability of Single Shot Kill (U)
PSSR	Pre-Ship Readiness Review (U)
PTS	Permit to Ship (U)
PTSS	Precision Tracking Space System (U)
Q	
Q	Quarter (U)
QA	Quality Assurance (U)
QTY	Quantity (U)
R	
RDT&E	Research, Development, Test and Evaluation (U)
Refurb	Refurbishment (U)

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RFI	Request for Information (U)
RFP	Request for Proposals (U)
RR	Readiness Review (U)
RSC	Raid Size Capacity (U)
RT	Real Time (U)
RV	Reentry Vehicle (U)
RVS	Raytheon Vision System (U)
S	
SA	Situational Awareness (U)
SAMP	Single Acquisition Management Plan (U)
SATCOM	Satellite Communications (U)
SBIRS	Space-Based Infra-Red System (U)
SBX	Sea Based X-Band (Radar) (U)
SCG	Security Classification Guide (U)
SCR	System Concept Review (U)
SDR	System Design Review (U)
SHF	Super High Frequency (U)
SIPRNet	Secure Internet Protocol Router Network (U)
SIL	System Integration Laboratory (U)
SIT	System Integration Test (U)
SM-3	Standard Missile-3 (U)
SRA	Selected Restricted Availability (Ship Availability) (U)
SRALT	Short Range Air Launch Target (U)
SRBM	Short-Range Ballistic Missile (U)
SRR	System Requirements Review / Ship Readiness Review (U)
SS	Summary Screen (U)
SSSTRP	Software System Safety Technical Review Panel (U)
STRATCOM	U.S. Strategic Command (U)
SV	Schedule Variance (U)
SW	Software (U)
SY	Shipyard (U)
SYS	System (U)
T	
T2	Transition and Transfer (U)
T&E	Test and Evaluation (U)
TA	Technical Assessment (U)
TB	Test Bed(s) (U)
TBD	To Be Determined (U)
TCD	Technology Capability Declaration (U)
TDACS	Throttleable DACS (U)
TDP	Technical Data Package (U)
TDU	TDACS Demonstration Unit (U)
TEWA	Threat Evaluation and Weapons Assignment (U)
TFCC	THAAD Fire Control and Communications (U)
THAAD	Terminal High Altitude Area Defense (U)
TM	Terminal Mode (U) / Technical Manual (U)
TM	Technical Manual (U)
TOG	Technical Objectives and Goals (U)
TOM	Target Object Map (U)
TOO	Target of Opportunity (U)
TPR	Technical Product Review (U)

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TS	Tal Shahar (U)
TSRM	Third Stage Rocket Motor (U)
TY	Then Year (U)
U	
UEWR	Upgraded Early Warning Radar (U)
UHF/EHF	Ultra High Frequency/Extremely High Frequency (U)
uRVA	Unshrouded Re-entry Vehicle Adapter (U)
USCG	U.S. Coast Guard (U)
USD AT&L	Under Secretary of Defense for Acquisition, Technology and Logistics (U)
USEUCOM	U.S. European Command (U)
USFT	United States Flight Test, Reference U.S.-Israeli Caravan Tests (U)
USNORTHCOM	U.S. Northern Command (U)
USPACOM	U.S. Pacific Command (U)
USSTRATCOM	U.S. Strategic Command (U)
V	
VA	Virginia (U)
VAC	Variance at Completion (U)
VAFB	Vandenberg Air Force Base (U)
VLS	Vertical Launching System (U)
V&V	Verification and Validation (U)
VV&A	Verification, Validation, and Accreditation (U)
W	
WF	Warfighter (U)
WIP	Warfighter Involvement Process (U)
WSESRB	Weapon System Explosive Safety Review Board (U)
WSMR	White Sands Missile Range (U)
X	
XBR	X-Band Radar (U)

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Appendix C: Multiple Sources for Security Classification (U)

- (U) Aegis Security Classification Guide (SCG) Change 1 with Administrative Change
- (U) Arrow Deployability Program
- (U) Arrow System Improvement Program to Include Change 1
- (U) BMD Target Systems with Change 1
- (U) BMDS AN/TPY-2 Radar Forward Based Mode (FBM) SCG
- (U) BMDS SCG MDA
- (U) Ground Based Midcourse Defense (GMD) SCG to Include Change 1
- (U) Terminal High Altitude Area Defense (THAAD) SCG

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3.1 C2BMC Spiral 6.4 (U)

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DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
7100 DEFENSE PENTAGON
WASHINGTON, DC 20301-7100

JUN 29 2010

DA

MEMORANDUM FOR PROGRAM DIRECTOR, C2BMC

SUBJECT: Development Decision Memorandum for Command and Control, Battle Management and Communication (C2BMC) Spiral 6.4 Baseline (U)

(U) The attached resource, schedule, technical, test, contract and operational baselines and activities are approved for the continued development of the C2BMC Spiral 6.4 Program.

(U) Changes to the BMDS baseline are managed through the Missile Defense Agency (MDA) Program Change Board (PCB) in accordance with MDA Directive 5000.04. Any PCB-approved changes that impact the C2BMC Spiral 6.4 acquisition will be implemented by the C2BMC Program Office and documented in its Single Acquisition Master Plan (SAMP). Baseline variances will be reported to the Director, MDA and in the annual BMDS Accountability Report (BAR).

(U) The following activities are directed to occur during the remainder of the development phase:

- Tri-Node (NORTHCOM, PACOM, STRATCOM)
Spiral 6.4 (ready for technical capability declaration) 2Q FY2011
- EUCOM Spiral 6.4 (ready for technical capability declaration) 1Q FY2012

(U) I approve the exit criteria listed in Attachment 8, and I direct you to continue the development of the C2BMC beyond Spiral 6.4 to deliver new capabilities to the Warfighter and to the Ballistic Missile Defense System (BMDS). These exit criteria must be met before Spiral 6.4 can be declared operational.

Patrick J. O'Reilly

PATRICK J. O'REILLY
Lieutenant General, USA
Director

~~Derived from: Multiple Sources~~
~~Declassify on: May 2034~~

~~SECRET~~

~~SECRET~~

Attachments:

1. C2BMC Spiral 6.4 Schedule Baseline (U). This document is "~~FOUO~~."
2. C2BMC Spiral 6.4 Technical Baseline (U). This document is "~~SECRET~~."
3. C2BMC Spiral 6.4 Test Baseline (U). This document is "~~FOUO~~."
4. C2BMC Spiral 6.4 Operational Baseline (U). This document is "~~FOUO~~."
5. C2BMC Spiral 6.4 Resource Baseline (U). This document is "~~FOUO~~."
6. C2BMC Spiral 6.4 Earned Value Management Chart (U). This document is "~~FOUO~~."
7. C2BMC Spiral 6.4 Contract Baseline (U). This document is "~~FOUO~~."
8. C2BMC Spiral 6.4 Exit Criteria (U). This document is "~~FOUO~~."

cc:

MDA/DX
MDA/DP
MDA/DE
MDA/DT
MDA/DO
MDA/DA
MDA/DS

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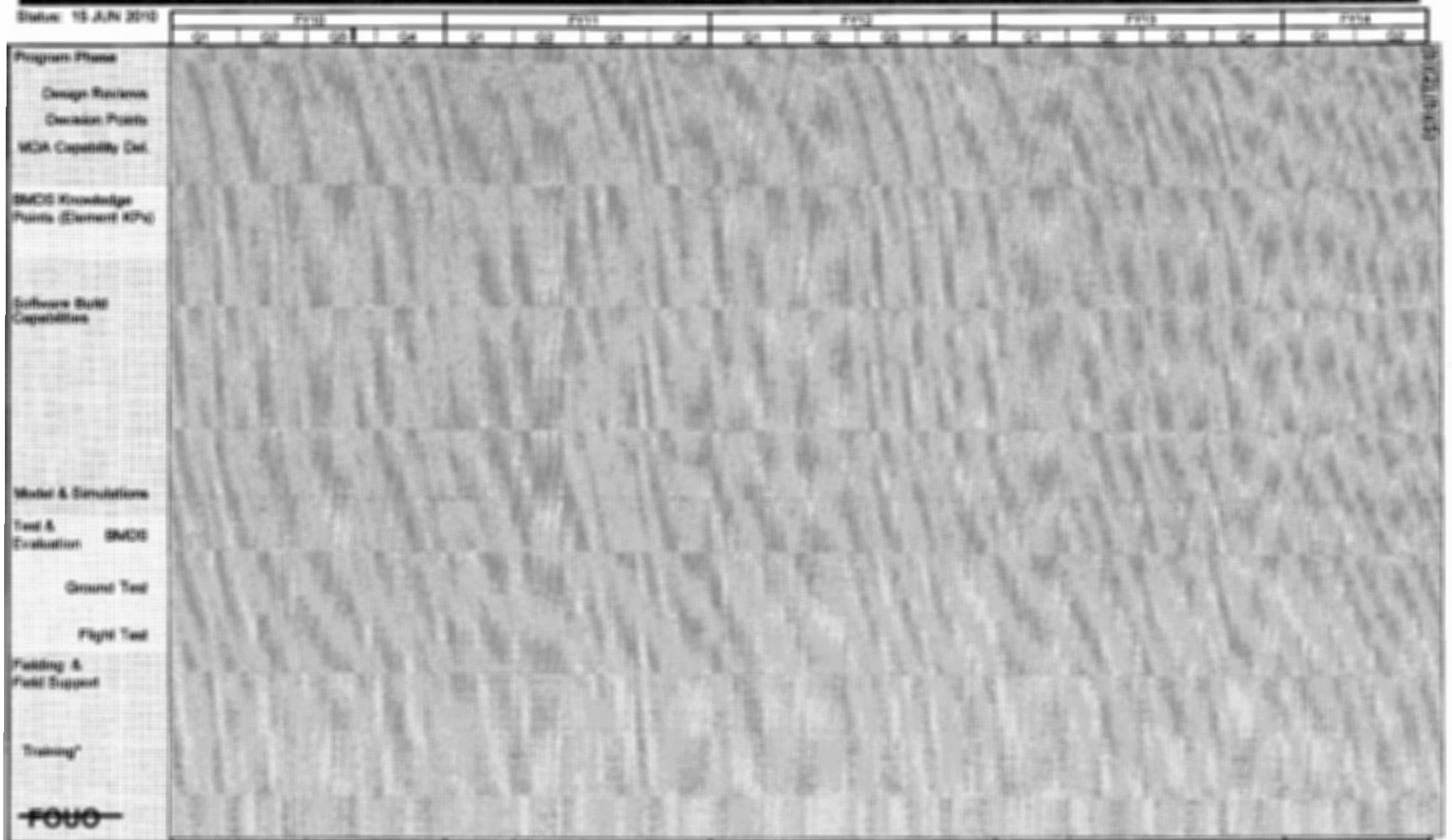
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Schedule
Baseline



C2BMC Spiral 6.4 Development Program Schedule Baseline (U)

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* Training for Warfighter and support commands is performed to suite operator schedules and done to accommodate real world exercises and test activities.

Critical Milestones highlighted in Yellow

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Technical
Baseline

C2BMC S6.4 Program BMDs Accountability Report Technical Baseline (U)

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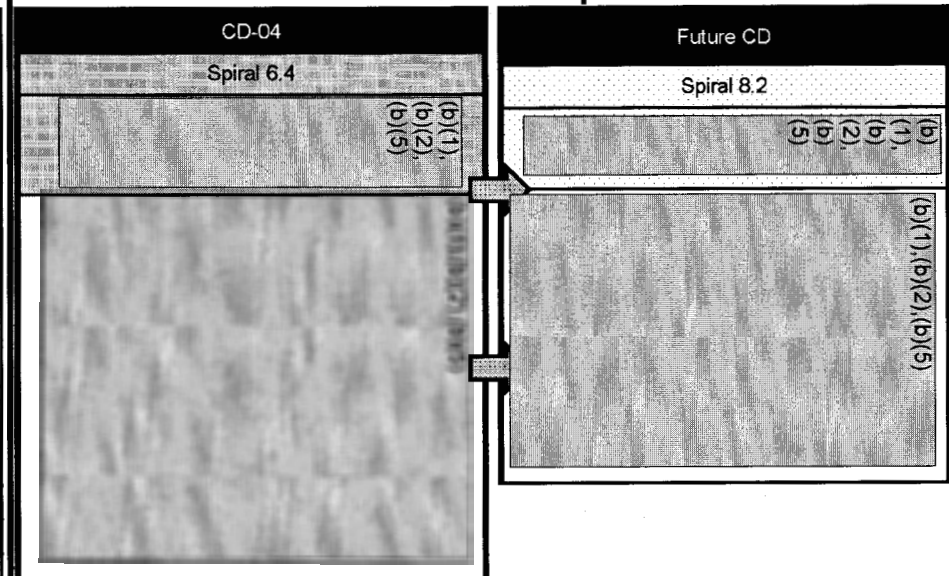
C2BMC related PCL items that have improvements with CD-04

Combatant Command Capability Needs	Enduring Capabilities
G. [Redacted] (b)(1), (b)(2), (b)(5)	[Redacted] (b)(1), (b)(2), (b)(5)
I. [Redacted] (b)(1), (b)(2), (b)(5)	[Redacted] (b)(1), (b)(2), (b)(5)
J. [Redacted] (b)(1), (b)(2), (b)(5)	[Redacted] (b)(1), (b)(2), (b)(5)
L. [Redacted] (b)(1), (b)(2), (b)(5)	[Redacted] (b)(1), (b)(2), (b)(5)
M. [Redacted] (b)(1), (b)(2), (b)(5)	[Redacted] (b)(1), (b)(2), (b)(5)
[Redacted]	[Redacted] (b)(1), (b)(2), (b)(5)
[Redacted]	[Redacted] (b)(1), (b)(2), (b)(5)
[Redacted]	[Redacted] (b)(1), (b)(2), (b)(5)
[Redacted]	[Redacted] (b)(1), (b)(2), (b)(5)
[Redacted]	[Redacted] (b)(1), (b)(2), (b)(5)
[Redacted]	[Redacted] (b)(1), (b)(2), (b)(5)

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Gray box indicates no association (U)

Current and Future Capabilities



Knowledge Points

C2BMC KP #	Description	Demonstrated by	Complete
1	[Redacted] (b)(1), (b)(2), (b)(5)	• GT-04 • FTM-15	
2	[Redacted] (b)(1), (b)(2), (b)(5)	• Warfighter Planner Exercises	

Approved:

(b)(6)

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Test
Baseline

C2BMC S6.4 BMDs Accountability Report

Test Baseline (CD-04) (U)

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Time Now

Program Plan		FY10				FY11				FY12				FY13				
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
TEST EVENTS	System/Element Flight Tests																	(b)(2), (b)(5)
	System Level GT GTX-Focused GTI= HWIL GTD= Distributed TA/PA = Digital Assessments WG & Exercises																	(b)(2), (b)(5)
	Chamber/Lab																	
Summary Information	Primary CEC/EME Phase Test Data Collects																	(b)(2), (b)(5)
	Additional Test Data Collection Opportunities																	Acquisition Phase Test Configuration S6.4C
		FTG-06 FTO-01 FTT-14 FTG-08 BVT-01 FTM-19 USFT-4 FTT-10b FTM-16 E1, E2 FTM-23 FTM-15 FTM-22 E2 FTT-12 FTX-10 FTG-06a AST-15 AST-14 FTT-16 FTT-15 FTX-12 FTM-20 E1, E2 FTG-13 FTM-19 E1, E2 FTM-21 E1, E2, E3																
*Element Flight Test Pending CECs: Critical Engagement Conditions EMEs: Empirical Measurement Events KP: Knowledge Point		△ PAA phase 1 Flight Test △ Near-Term Flight Test ○ Mid-Term Flight Test ◇ Far-Term Flight Test				□ PAA Phase 1 Ground Test □ Near-Term Ground Test □ Mid-Term Ground Test □ Far-Term Ground Test				△ ○ ◇ Operational Flight Test				Approved: (g)(9)				

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C2BMC S6.4 Program BMDs Accountability Report Operational Capacity Baseline (U)

Operational
Capacity
Baseline

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C2BMC Configuration	CD-04

CD-04 CAPABILITIES & LIMITATIONS	
Planned	(b)(1), (b)(2), (b)(5)
1.	
2.	
3.	
Situational Awareness	
4.	(b)(1), (b)(2), (b)(5)
5.	
Tracking	
6.	(b)(1), (b)(2), (b)(5)
Battle Management, sensor control, task force dir.	
Information Assurance	

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MDA Operational Capability Delivery	DATE
Doctrine (b)(1), (b)(2), (b)(5)	Coord. Draft – ECD: TBD ECD: (b)(1), (b)(2), (b)(5)
Organization/Personnel (b)(1), (b)(2), (b)(5)	In Place In Place
Training (b)(1), (b)(2), (b)(5)	ECD: (b)(1), (b)(2), (b)(5) ECD: (b)(1), (b)(2), (b)(5)
Leadership and Education (b)(1), (b)(2), (b)(5)	ECD: (b)(1), (b)(2), (b)(5)
Security/Interoperability (b)(1), (b)(2), (b)(5)	Approved ECD: (b)(1), (b)(2), (b)(5)
	4QFY10 2QFY11 TBD 3QFY11 4QFY11 3QFY13 4QFY13
(b)(1), (b)(2), (b)(5)	ECD: (b)(1), (b)(2), (b)(5)
(b)(1), (b)(2), (b)(5)	ECD: (b)(1), (b)(2), (b)(5)

Approved:

(b)(1), (b)(2), (b)(5)

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C2BMC Spiral 6.4 Program BMDS Accountability Report

Resource
Baseline

Resource Baseline Summary (U)

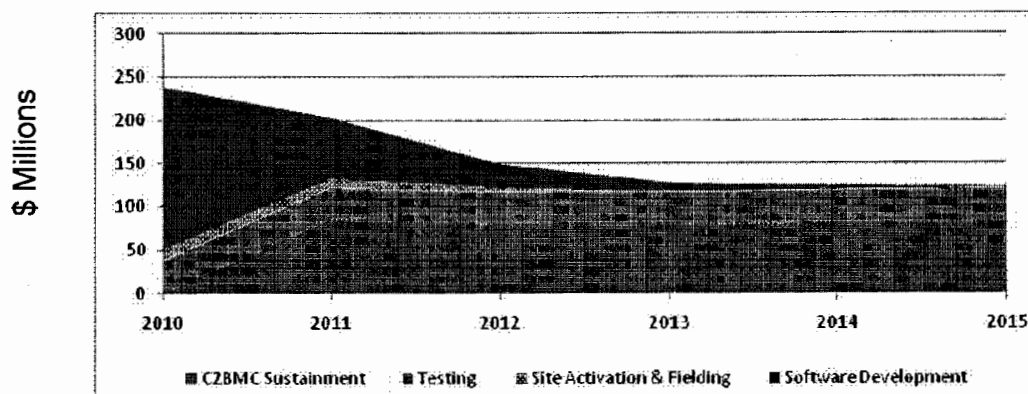
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C2BMC Spiral 6.4 Program Acquisition Costs (BY10\$M)		
Component	Current Est	Baseline
C2BMC Spiral 6.4	859	859

Costs TY \$M	Sunk	2010	2011	2012	2013	2014	2015	FYDP Total	To Complete	Total
Software Development	299	189	71	27	10	4	1	302	-	601
Testing	-	38	36	37	37	38	39	225	-	225
Site Activation & Fielding	20	12	10	5	-	-	-	27	-	47
Development Total	318	238	116	69	48	43	40	554	-	872
C2BMC Sustainment	-	-	86	80	80	81	83	410	-	410
RDT&E Cost Estimate	318	238	203	149	127	124	123	964	-	1,282

C2BMC Spiral 6.4 Program Life Cycle Cost Estimate Description Documentation					
Joint Cost Analysis Requirements Description					
CARD approval date: 01/05/2010					
Updated Annually					
MDA Life Cycle Cost Estimate					
Date Approved: 01/06/2010					
Life Cycle Cost Estimate (BY10\$M)					
	Sunk	Current Estimate To Go	Total	Baseline	Variance
Development	322	537	859	859	-
Software Development	302	297	599	599	-
Testing	-	214	214	214	-
Site Activation & Fielding	20	26	46	46	-
Operations and Support		387	387		
Total Life Cycle	322	924	1,246		
Explanation of Variance					

Time Phased Estimate Chart



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Approved:

(g)(q)



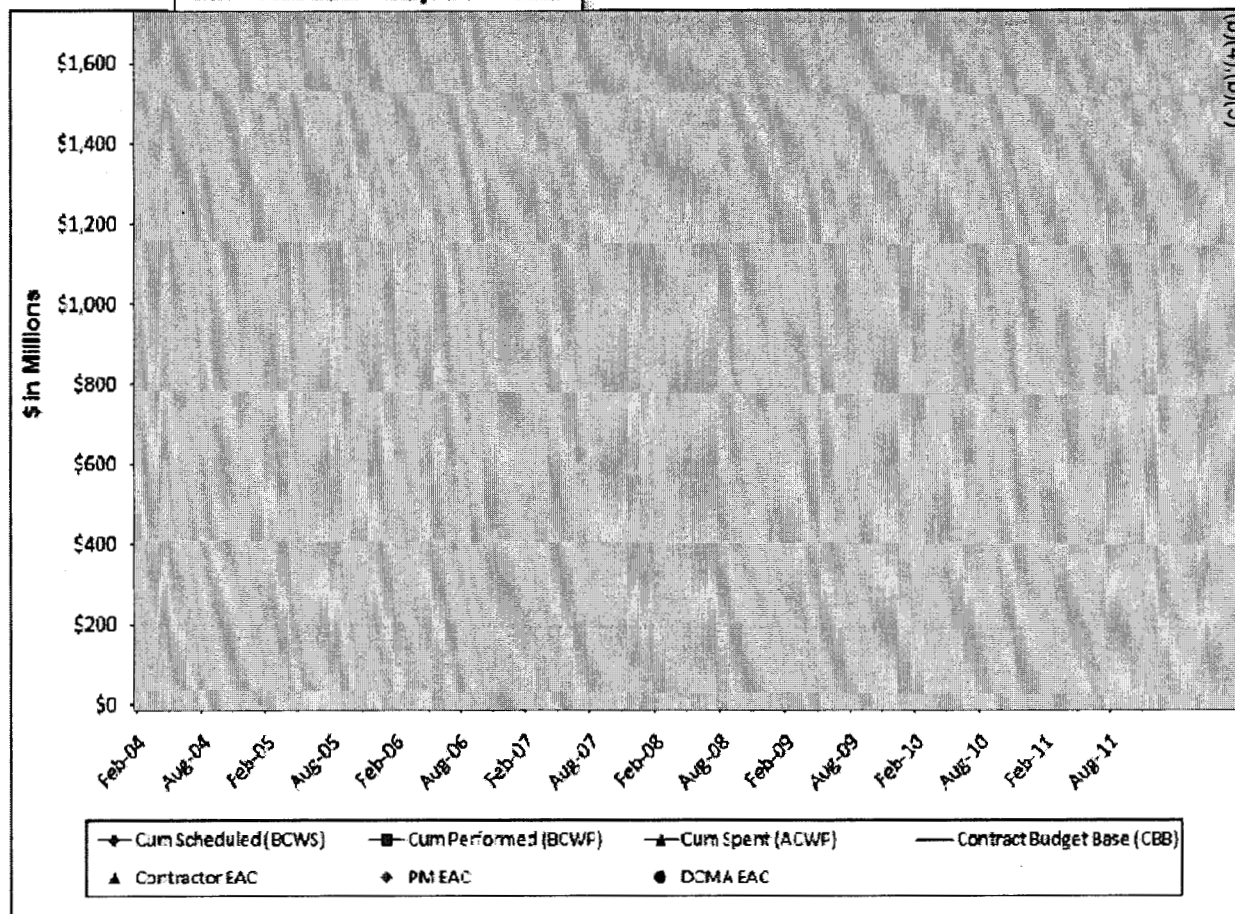
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C2BMC Total Contract (U)

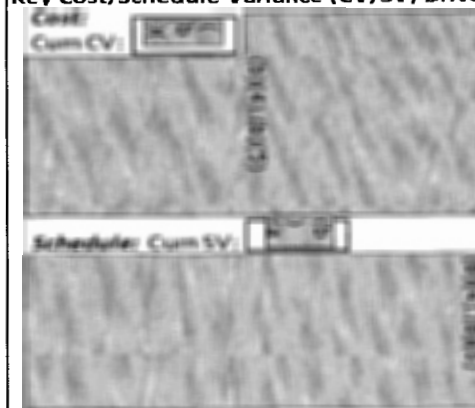
Earned Value Management Data

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MDA EVM Data - May10 CPR Data



Key Cost/Schedule Variance (CV/SV) Drivers



Impacts (cost, schedule, technical, funding)



Current Funding Impact:

(b)(4), (b)(5)

Prime Contractor	Contract Type	CBB	Variances	Cumulative	Current Month		EAC	VAC
Lockheed Martin	CPAF	(b)(4), (b)(5)	SV	(b)(4), (b)(5)	PM		(b)(4), (b)(5)	(b)(4), (b)(5)
Period of Performance	Last IBR Date	% Complete	CV		KTR			(b)(4), (b)(5)
Feb 2002 - Dec 2011	04-May-10	(b)(4), (b)(5)	Level of Effort (LOE) Percentage	(b)(4), (b)(5)	DCMA	None	None	(b)(4), (b)(5)

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(b)(6)

(b)(5)



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S6.4 Product Development Phase Exit Criteria (U)

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#	Exit Criteria	Baseline	Req'd For S6.4 Technical Capability Declaration
1	Verified Requirements		
1a	S6.4 requirements verified through development testing and waivers (if any) approved by DE	Technical	
1b	Combined DT/OT analysis substantiates capabilities/limitations – at PCB	Technical/ Schedule	Y
1c	Validated C2BMC S6.4 model to support Performance Assessment	Technical	
2	Affordable (FYDP and Beyond)		
2a	CARD updated to include current IMTP and O&S requirements (up to transition to S8.2)	Resource	
2b	Cost estimate developed that reflects the CARD; estimate approved	Resource	
2c	Adequate budget available	Resource	
3	Achievable Design		
3a	Verified through Cycle 2 Testing	Technical	
4	Achievable Design and Test Schedule		
4a	Operator soak and capability demonstrations supported	Technical	
4b	Results of IMTP tests have been assessed for operational effectiveness, suitability, and military utility of C2BMC S6.4 – Dependent on GT-04 series activity	Test	
5	Sustainability Plans		
5a	Individual site support plans approved by BC and validated by DW	Operational	
5b	Contractor Logistics Support (CLS) program in place.	Operational	

(b)(2)(b)

Risk to Execution	
Low	
Medium	Y
High	

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3.2.1 THAAD 1.0 (U)

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JUN 22 2010

MEMORANDUM FOR PROGRAM MANAGER, TERMINAL HIGH ALTITUDE
AREA DEFENSE, MISSILE DEFENSE AGENCY

SUBJECT: Development Decision Memorandum for Terminal High Altitude Area
Defense Baseline 1.0 Review (U)

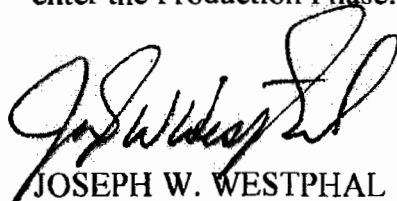
(U) The attached schedule, technical, test, operational, resource, and contracts
baselines and activities are approved for Terminal High Altitude Area Defense
(THAAD) 1.0.


(U) Changes to the BMDS baseline are managed through the Missile Defense
Agency (MDA) Program Change Board (PCB) in accordance with MDA Directive
5000.04. The Army staff is invited to participate in the Integration and Synchronization
Group (ISG) and PCB meetings that impact THAAD baselines, and all updates will be
included as an agenda topic in the Army Board of Directors meetings. PCB-approved
changes that affect the THAAD acquisition will be implemented by the THAAD Program
Office and documented in the Single Acquisition Management Plan. Baseline variations
will be reported to the MDA Director, the Assistant Secretary of the Army for
Acquisition, Logistics and Technology, or other Army staff as identified by the Under
Secretary of the Army, and in the annual BMDS Accountability Report.

(U) The following activities are directed to occur during the remainder of the
THAAD 1.0 Product Development Phase:

- | | |
|------------------------------------------------|--------|
| • Production Decision for Batteries 3&4 | 4QFY10 |
| • Materiel Release to the Army | 2QFY11 |
| • Production Decision for Battery 5 | 3QFY11 |
| • Flight Test Operational 1 | 4QFY12 |
| • Production Decision for Batteries 6 & Beyond | 1QFY13 |

(U) The criteria to exit the Product Development Phase (Attachment 9) are also
approved. A baseline review is expected in 4QFY12 prior to a USD (AT&L) decision to
enter the Production Phase.


JOSEPH W. WESTPHAL
Under Secretary of the Army


PATRICK J. O'REILLY
Lieutenant General, USA
Director

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Attachments:

1. THAAD Schedule Baseline (U). This document is "~~FOUO~~."
2. THAAD Technical Baseline (U). This document is "~~SECRET~~."
3. THAAD Test Baseline (U). This document is "~~FOUO~~."
4. THAAD Operational Baseline (U). This document is "~~SECRET~~."
5. THAAD Resource Baseline (U). This document is "~~FOUO~~."
6. THAAD Development Program Earned Value Management Chart (U). This document is "~~FOUO~~."
7. THAAD Production Program Earned Value Management Chart (U). This document is "~~FOUO~~."
8. THAAD Contract Baseline (U). This document is "~~FOUO~~."
9. THAAD Exit Criteria from Product Development (U). This document is "~~FOUO~~."

cc:

MDA/DX
MDA/DE
MDA/DO
MDA/DA
MDA/DP
MDA/DT
MDA/DS

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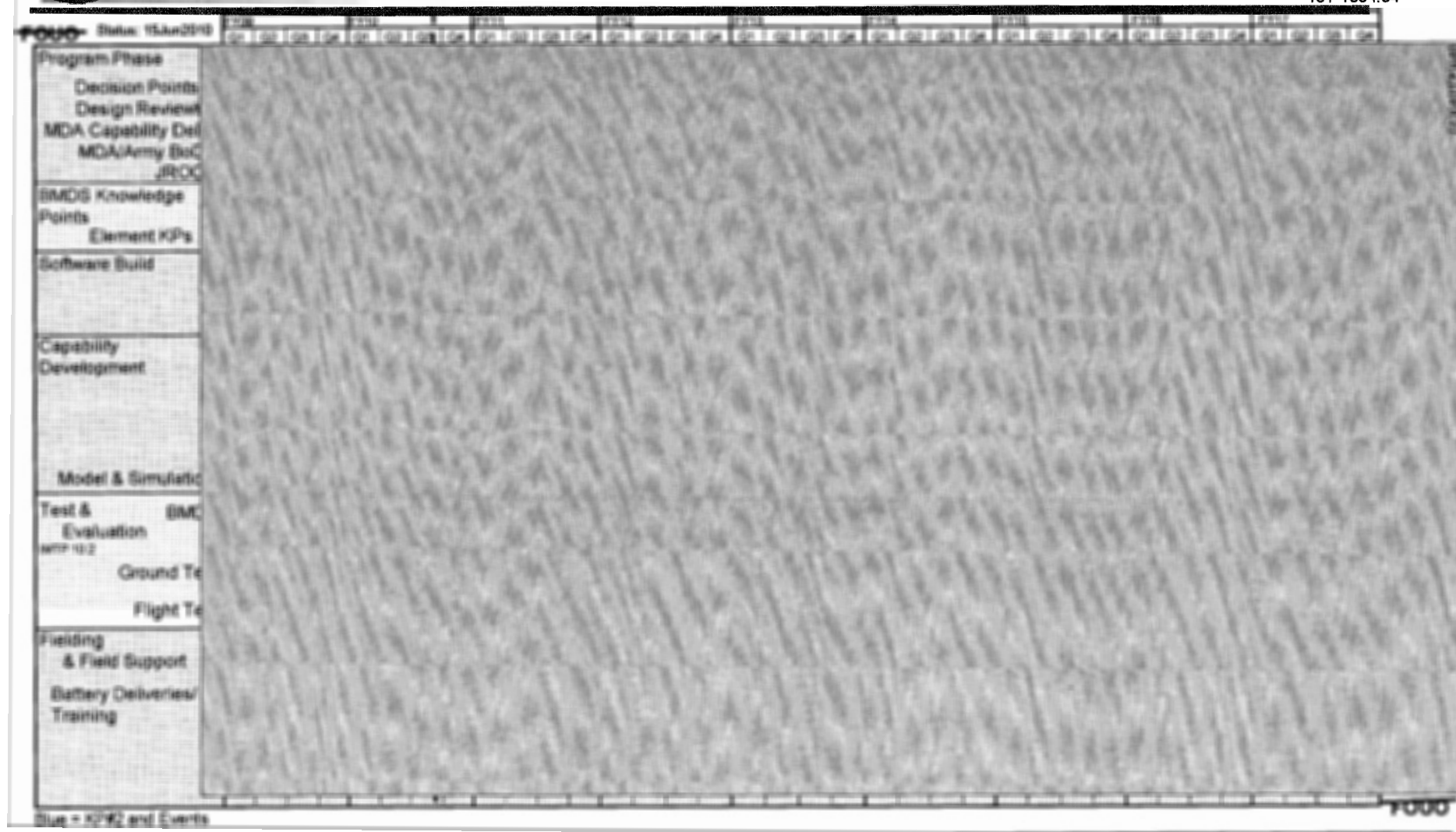


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Schedule
Baseline

THAAD 1.0 Program Schedule Baseline (U)

10T-1004.04



Critical Milestones highlighted in Yellow

Attachment 1

~~FOR OFFICIAL USE ONLY~~

(b)(6)



Technical Baseline

10T-1004.05

FOUO

Current and Future Capabilities (U)

~~Foto~~

Knowledge Points (U)

KP #	Title	Demonstrated By	Completed
N O L O	G O N O L O		✓
	G O N O L O	FTT-06	✓
	G O N O L O	HWIL	✓
L O	G O L O L O L O		
	G O N O L O	FTT-06, FTT-07, FTT-08, FTT-09, and FTT-10a, LUT	✓
	G O N O L O	FTT-14.3QFY10	
	G O N O L O	FTT-13.3QFY12	
	G O N O L O	Modified FTT-12.4QFY11	

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Approved:

1998

Attachment 2

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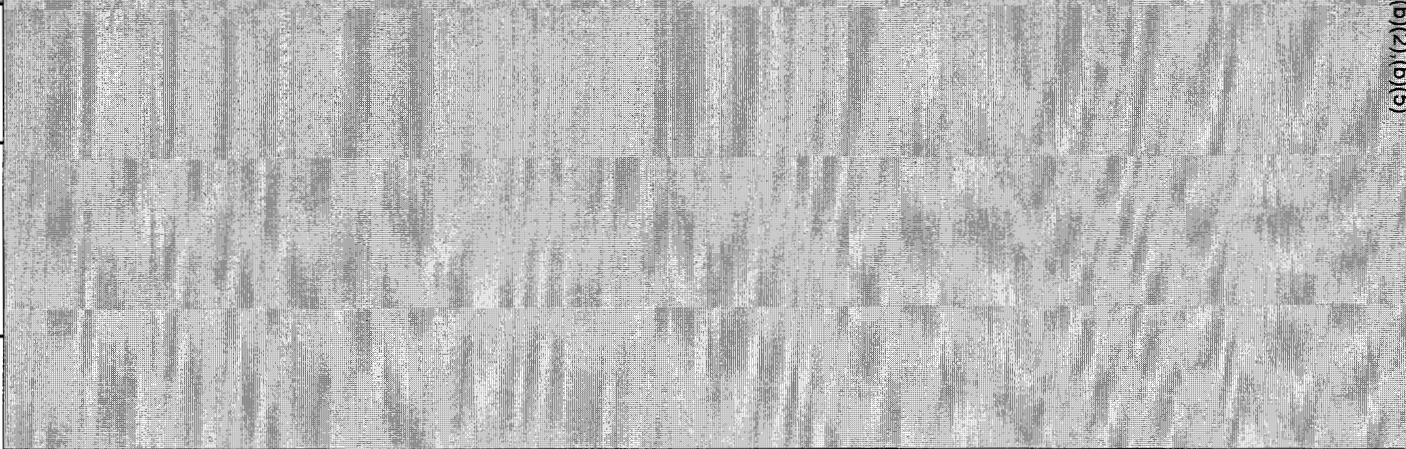
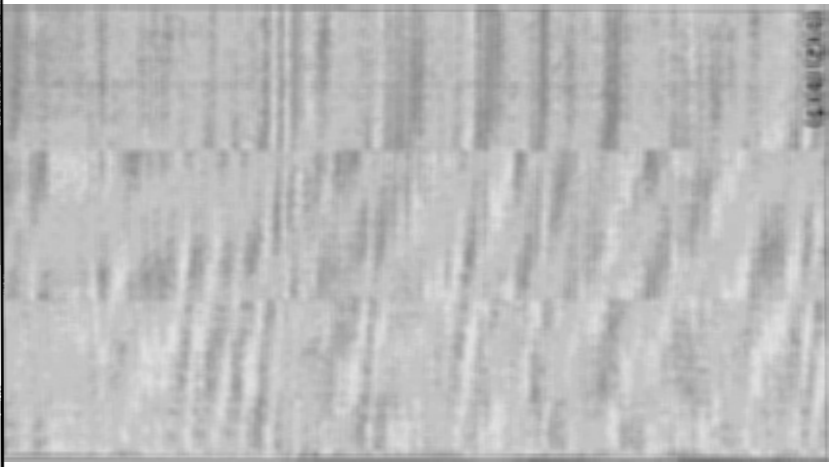
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Test
Baseline

THAAD 1.0 Program Test Baseline (U)

- IAW IMTP 10.2 -

10T-1004.06

FOUO																		
TH Program Plan																		
	FY10	FY11	FY12	FY13														
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Test Events	System/Element Flight Tests																	(b)(2), (b)(5)
	System Level GT GTx: Focused GTI: HWIL GTD: Distributed TA / PA = Digital Perf. Assessments																	
	Chamber / Lab / Simulation																	
Summary Information			<u>Additional Test Data Collection Opportunities</u> Caravan II				<u>Current Test Configuration</u> TFCC - 5.2 Launcher - 4.2 Radar - 4.2.4											
			FOUO															

△ Near-Term PAA Ph1 Flight Test

○ Mid-Term PAA Ph2 Flight Test

◇ Far-Term PAA Ph3 Flight Test


□ Near-Term PAA Ph1 Ground Test

□ Mid-Term PAA Ph2 Ground Test

□ Far-Term PAA Ph3 Ground Test

△ ○ ◇ Operational Flight Test

□ Operational Ground Test

Approved: 

(b)(6)



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THAAD 1.0 Program Operational Capacity Baseline (U)

Operational
Capacity
Baseline

10T-1004.07

THAAD 1.0 Configuration	Date
(b)(1), (b)(2), (b)(5)	24 Mar 10
(b)(1), (b)(2), (b)(5)	6 Mar 10
(b)(1), (b)(2), (b)(5)	May 08
(b)(1), (b)(2), (b)(5)	ECD: (b)(1), (b)(2), (b)(5)
(b)(1), (b)(2), (b)(5)	Jun 09
(b)(1), (b)(2), (b)(5)	ECD 4QFY10
(b)(1), (b)(2), (b)(5)	Nov 08

THAAD 1.0 CAPABILITIES & LIMITATIONS
(b)(1), (b)(2), (b)(5)

MDA Operational Capability Delivery	DATE
Doctrine (b)(1), (b)(2), (b)(5)	24 Mar 10, ECD: (b)(1), (b)(2), (b)(5) 6 Mar 10, ECD: (b)(1), (b)(2), (b)(5)
Organization/Personnel (b)(1), (b)(2), (b)(5)	May 08 ECD: (b)(1), (b)(2), (b)(5)
Training (b)(1), (b)(2), (b)(5)	Jun 09 ECD 4QFY10 Nov 08
Leadership and Education (b)(1), (b)(2), (b)(5)	Mar 10 Feb 08
Security/Interoperability (b)(1), (b)(2), (b)(5)	Mar 10 ECD: Sep 10 ECD: Sep 10 ECD: Jul 10
BMDS System Level Testing/Performance (b)(1), (b)(2), (b)(5)	2QFY08/3QFY08/2QFY09 2QFY10/4QFY10 4QFY09 1QFY10
(b)(1), (b)(2), (b)(5)	ECD: (b)(1), (b)(2), (b)(5)
(b)(1), (b)(2), (b)(5)	ECD: Nov 10
(b)(1), (b)(2), (b)(5)	ECD: (b)(1), (b)(2), (b)(5)

FOUO

Approved:

(b)(6)

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THAAD 1.0 BMDs Accountability Report Resource Baseline Summary (U)

Resource
Baseline

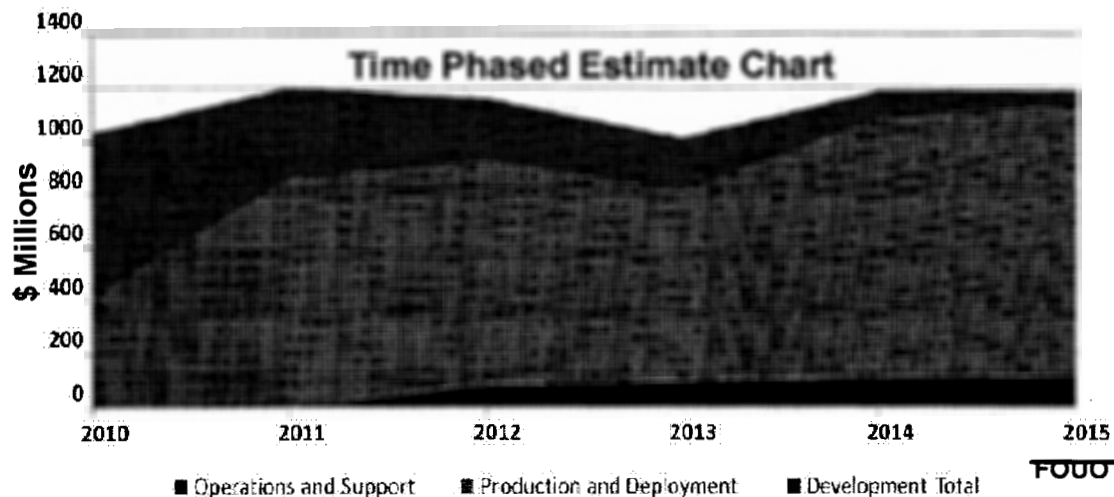
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Program Acquisition Unit Costs (BY10\$M)			
Component	Qty	Current Est	Baseline
Interceptor	483	\$ 22	\$ 22
TFCC	26	\$ 65	\$ 65
Launcher	72	\$ 11	\$ 11
Average Procurement Unit Costs (BY10\$M)			
Component	Qty	Current Est	Baseline
Interceptor	381	\$ 11	\$ 11
TFCC	14	\$ 16	\$ 16
Launcher	54	\$ 10	\$ 10

Costs TY \$M	Sunk	2010	2011	2012	2013	2014	2015	FYDP Total	To Complete	Total
Hardware Development	\$ 2,964	\$ 311	\$ 169	\$ 107	\$ 108	\$ 68	\$ 51	\$ 814	\$ -	\$ 3,777
Hardware Procurement	\$ 474	\$ 150	\$ 24	\$ 12	\$ 11	\$ 13	\$ 9	\$ 219	\$ -	\$ 692
Software Development	\$ 451	\$ -	\$ 34	\$ -	\$ -	\$ -	\$ -	\$ 34	\$ -	\$ 485
Testing	\$ 2,654	\$ 155	\$ 118	\$ 121	\$ 85	\$ 23	\$ -	\$ 500	\$ -	\$ 3,155
Development Total	\$ 6,543	\$ 615	\$ 345	\$ 240	\$ 204	\$ 103	\$ 59	\$ 1,566	\$ -	\$ 8,109
Production and Deployment	\$ 105	\$ 419	\$ 859	\$ 835	\$ 710	\$ 974	\$ 1,007	\$ 4,804	\$ -	\$ 4,908
Military Construction	\$ 26	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 26
Operations and Support *	\$ -	\$ -	\$ -	\$ 88	\$ 99	\$ 113	\$ 122	\$ 422	\$ 3,768	\$ 4,191
Total Cost Estimate	\$ 6,674	\$ 1,034	\$ 1,204	\$ 1,163	\$ 1,013	\$ 1,190	\$ 1,189	\$ 6,792	\$ 3,768	\$ 17,235

*Note: Estimate includes \$10M per year for 2 AN/TPY-2 deployed OCONUS in support of PAA

Joint Cost Analysis Requirements Description					
CARD approval date: Approved by MDA/D on 23 Oct 2009					
Updated Annually					
Joint Life Cycle Cost Estimate					
Program Office Estimate Approved 10 March 2010					
Life Cycle Cost Estimate - BY10\$M					
	Sunk	Current Estimate		Baseline	Variance
		To Go	Total		
Development	\$ 7,111	\$ 1,514	\$ 8,625	\$ 8,625	-
Hardware Development	\$ 3,230	\$ 784	\$ 4,014	\$ 4,014	-
Hardware Procurement	\$ 480	\$ 213	\$ 693	\$ 693	-
Software Development	\$ 496	\$ 33	\$ 529	\$ 529	-
Testing	\$ 2,906	\$ 483	\$ 3,389	\$ 3,389	-
Production and Deployment	\$ 105	\$ 4,484	\$ 4,589	\$ 4,589	-
Military Construction	\$ 29	\$ -	\$ 29	\$ 29	-
Operations and Support	\$ -	\$ 4,162	\$ 4,162	\$ 4,162	-
Total Life Cycle	\$ 7,245	\$ 10,160	\$ 17,405	\$ 17,405	-



Approved:

(Signature)

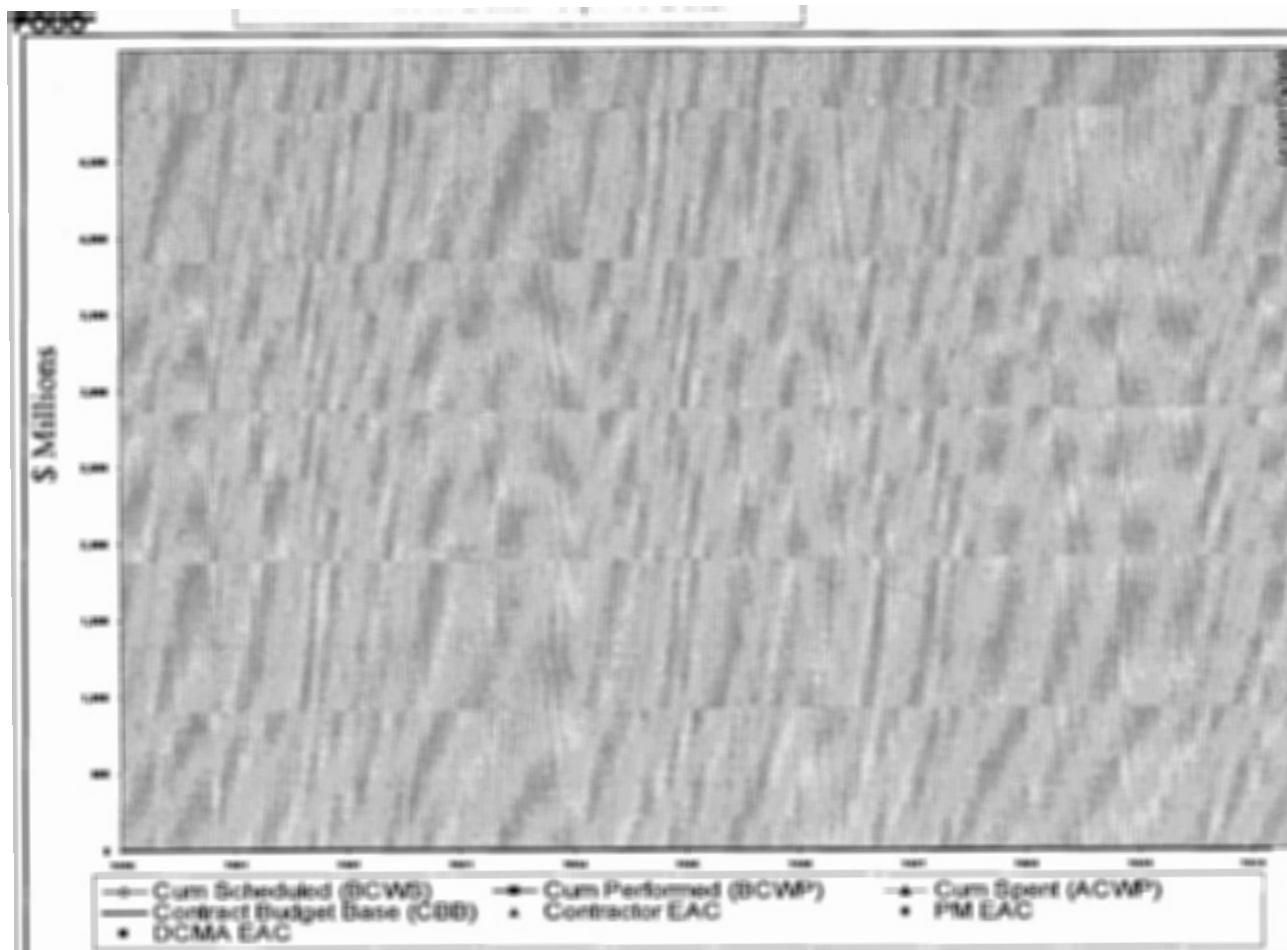
FOUO



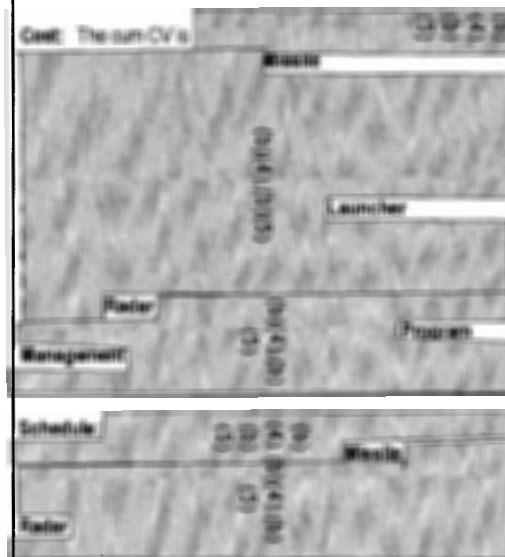
~~FOR OFFICIAL USE ONLY~~

TH Development Program
Schedule, Performance & Actuals - 0072 Development Contract
Earned Value Management Data (U)

MDA EVM Data – Apr 10 Data



Key Cost/Schedule Variance (CV/SV) Drivers

**Projected Variance At Complete (VAC)**

LM VAC is (A)

Bergmann, Peter, Schmalzer, Michael, Thiele, Frank, Farnberg, J.

Prime Contractor	Contract Type	CBB	Variances	Cumulative	Current Month		EAC	VAC
Lockheed Martin	CPAF	(4) (0)	SV	(0) (0) (0) (0)	(0) (0) (0) (0)	PM		(0) (0) (0) (0)
Period of Performance	Last IBR Date*	% Complete	CV			KTR		
Jun 00 – Jan 11	Jul 05 – Jun 06	(4) (0)	Level of Effort (LOE) Percentage:	(0)		DCMA		

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(a)(a)



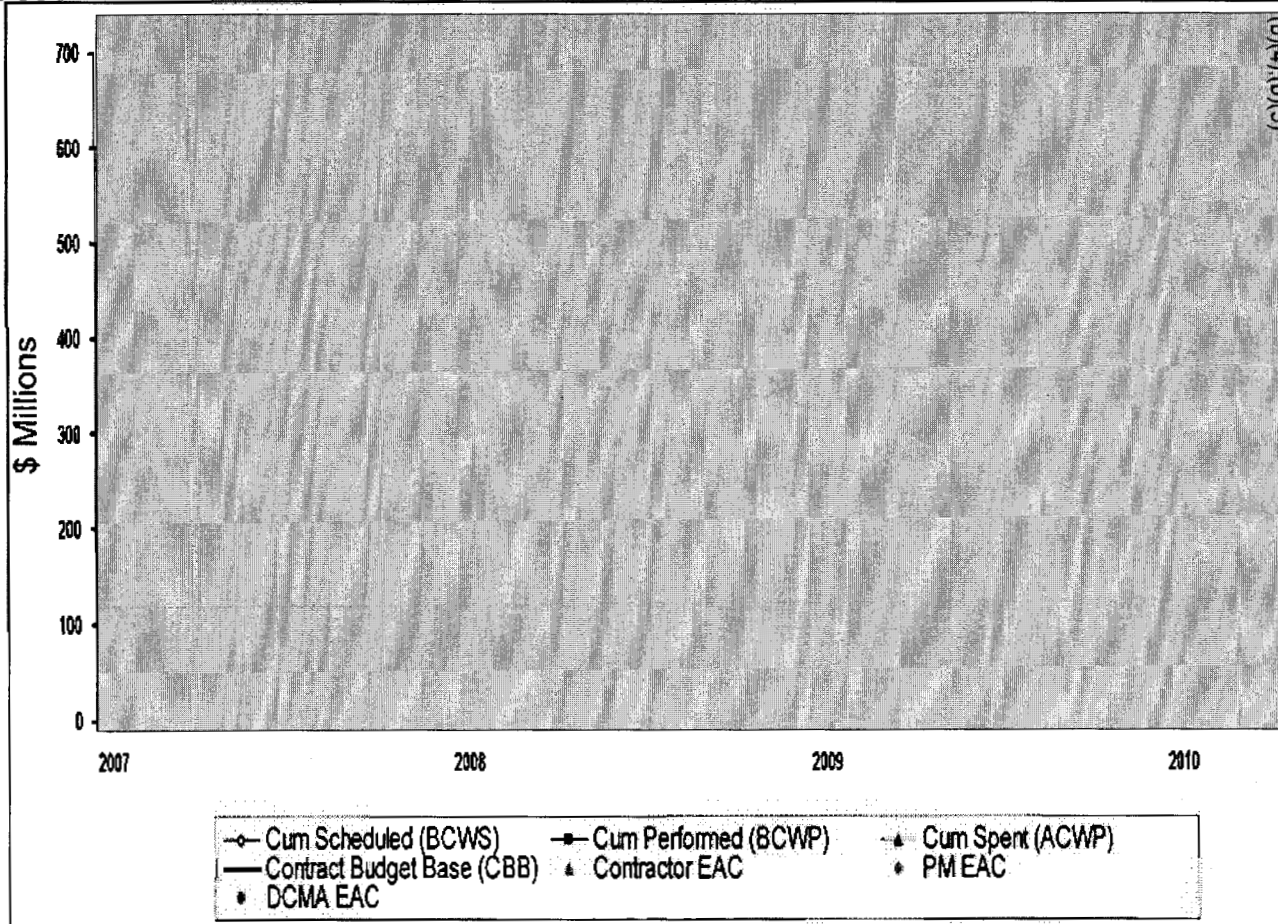
FOR OFFICIAL USE ONLY

TH Production Program Schedule, Performance & Actuals (U)

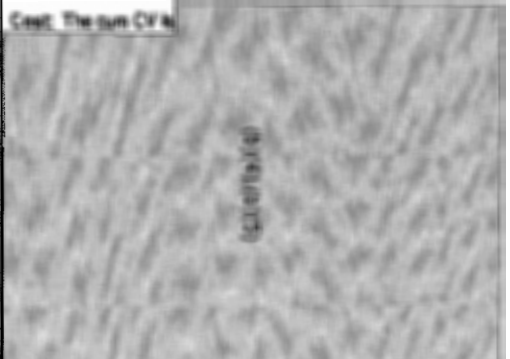
0196 Fire Unit Fielding Contract

MDA EVM Data - Apr 10 Data

FOUO



Key Cost/Schedule Variance (CV/SV) Drivers



Projected Variance At Complete (VAC)

LM VAC is (b)(4), (b)(5)

Impacts (Cost, Schedule, Technical, Funding):



Prime Contractor	Contract Type	CBB	Variances	Cumulative	Current Month		EAC	VAC
Lockheed Martin	CPIF/CPAF	(b)(4), (b)(5)	SV		(b)(4), (b)(5)	PM	(b)(4), (b)(5)	0.0
Period of Performance	Last IBR Date*	% Complete	CV			KTR	(b)(4), (b)(5)	(b)(4), (b)(5)
Dec 06 - Aug 10	May- 07 -Mar 09	(b)(4), (b)(5)	Level of Effort (LOE) Percentage 32%			DCMA	(b)(4), (b)(5)	0.0

FOUO

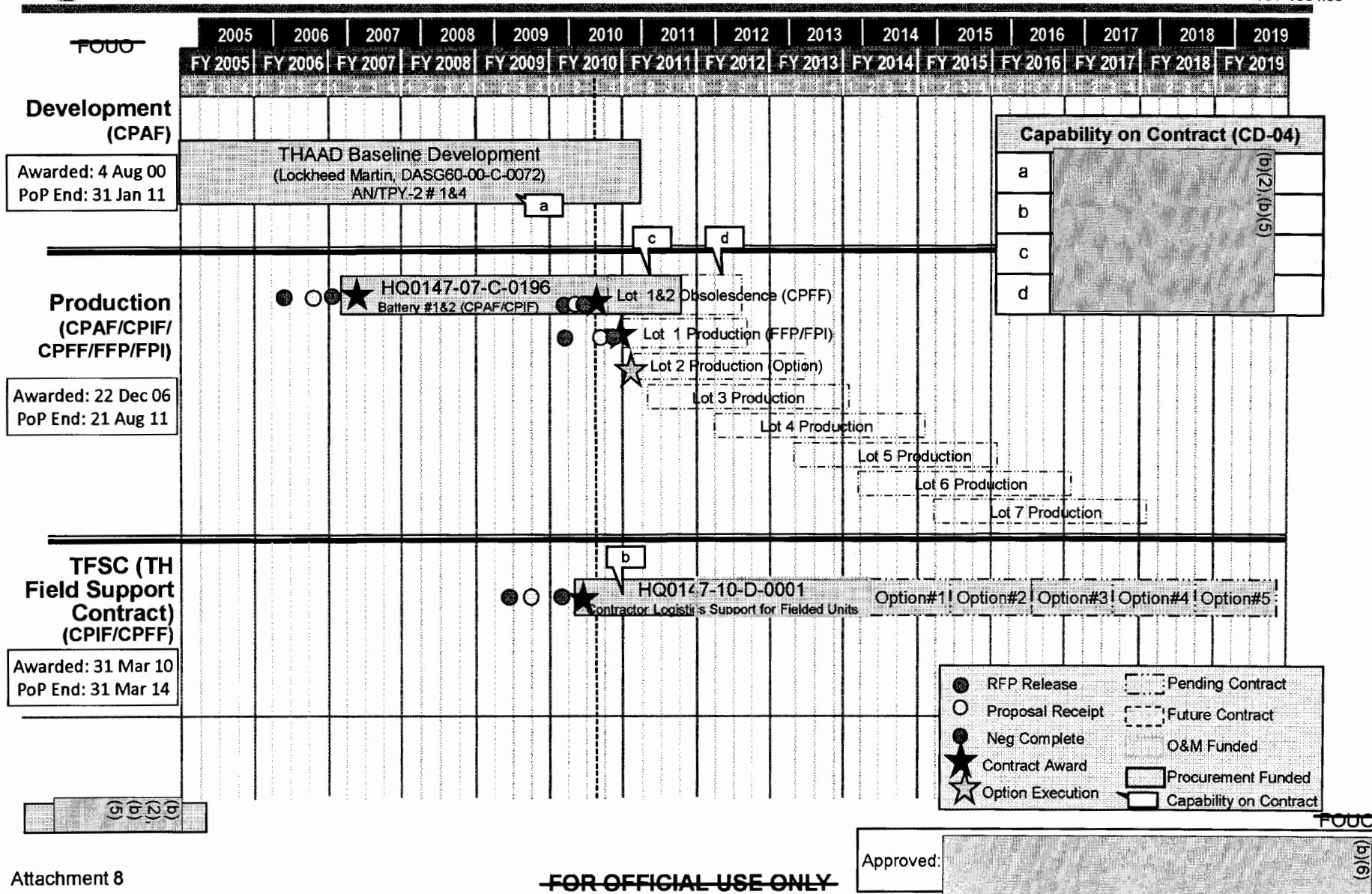


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Contracts
Baseline

THAAD 1.0 Program Contract Baseline (U)

10T-1004.09





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THAAD Exit Criteria from Product Development Phase (U)

-1QFY13-

10T-1004.15

~~FOUO~~

Exit Criteria		Baseline	Status
1	Verified Requirement		
1a	THAAD System Specification Rev V. traced to BMD System Specification Build C	Technical	Completed Sep 08
1b	Approved Capability Production Document	Technical	Dec 08
2	Design is stable		
2a	Weapon System Production Qualification complete for all components and subassemblies	Technical	ECD Aug 10
3	Test results support confidence that the user needs will be met		
3a	ATEC Operational Assessment Report (OAR) – Effectiveness, Suitability, and Survivability Assessment	Test	ECD Nov 10
4	Projected quantities are affordable		
4a	Approved MDA/CARD	Resource	ECD Jul 10
4b	Independent Cost Estimate, Completed by CAPE	Resource	ECD 1QFY11
4c	Full funding for Procurement and Operations and Sustainment	Resource	PB 11
4d	Training Aids , Devices, Simulators, and Simulations (TADSS) Funded	Resource	PB 11
5	Manufacturing processes are in control		
5a	No significant manufacturing risks	Technical	Aug 10
5b	Industrial Capabilities Assessment completed	Technical	Final ECD: May 10
6	Plans for operations are in place		
6a	Supportability Strategy coordinated w/ ARSTAFF, approved by PM (IAW AR 700-127)	Operational	Approved Nov 09 SIPT concur Feb 10
6b	Materiel Fielding plan coordinated with ARSTAFF (IAW AR 700-142)	Operational	Apr 10
6c	Approved STRAP and Training Support Plan	Operational	STRAP: Nov 08 TSP: Dec 09

~~FOUO~~

Attachment 9

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Risk to Execution
 Low ☐ Medium ☒ Y High ☐ Complete ☒ C

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3.2.2 AN/TPY-2 (U)

~~SECRET~~

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JUN 22 2010

MEMORANDUM FOR PROGRAM DIRECTOR, SENSORS, MDA (U)

SUBJECT: Development Decision Memorandum (DDM) for Sensors AN/TPY-2
Program Baseline Review (U)

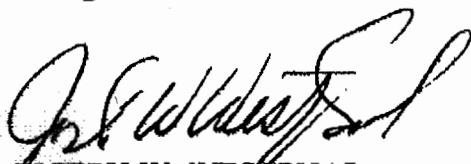
(U) The attached schedule, technical, test, operational capacity, resource, and contracts baselines and activities are approved for the Sensors (SN) AN/TPY-2 Program.


(U) Changes to the Ballistic Missile Defense System (BMDS) baselines are managed through the Missile Defense Agency (MDA) Program Change Board (PCB) in accordance with MDA Directive 5000.04. The Army staff is invited to participate in the Integration and Synchronization Group (ISG) and PCB meetings that impact AN/TPY-2 baselines, and all updates will be included as an agenda topic in the Army Board of Directors meetings. PCB-approved changes that affect the AN/TPY-2 Program will be implemented by the MDA/SN Program Office, documented in the Single Acquisition Management Plan (SAMP). Baseline variations will be reported to the MDA Director, the Assistant Secretary of the Army for Acquisition, Logistics and Technology, or other Army staff as identified by the Under Secretary of the Army, and in the annual BMDS Accountability Report.

(U) The following activities are directed to occur during the remainder of the AN/TPY-2 Program development:

- | | |
|--------------------------------------------------------------|--------|
| • Deliver Prime Power Units (PPUs) for THAAD Batteries 1 & 2 | 4QFY10 |
| • Completion of Capability Delivery 03 (CD-03) | 4QFY10 |
| • Production Decision for AN/TPY-2s # 8 and 9 | 4QFY10 |
| • Support THAAD Materiel Release to the Army | 2QFY11 |
| • Production Decision for AN/TPY-2s # 10 through 14 | 2QFY11 |
| • Refurbishment of AN/TPY-2 # 4 | 4QFY11 |
| • Completion of Capability Delivery 04 (CD-04) | 2QFY14 |

(U) We approve the criteria to exit product development and initial production (Attachment 0) and expect the AN/TPY-2 Program Office to deliver CD-03 and THAAD Radar 1.0 capability in 1QFY11, CD-04 in 2QFY14, and continue producing hardware through FY18.


JOSEPH W. WESTPHAL
Under Secretary of the Army


PATRICK J. O'REILLY
Lieutenant General, USA
Director

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~~SECRET~~

Attachments:

1. AN/TPY-2 Schedule Baseline (U). This document is "~~FOUO~~."
2. AN/TPY-2 Technical Baseline (U). This document is "~~SECRET~~."
3. AN/TPY-2 Test Baseline (U). This document is "~~FOUO~~."
4. AN/TPY-2 Operational Capacity Baseline (U). This document is "~~SECRET~~."
5. AN/TPY-2 Resource Baseline (U). This document is "~~FOUO~~."
6. AN/TPY-2 #2, 3, 5 & 6 Earned Value Management Charts (U). This document is "~~FOUO~~."
7. AN/TPY-2 #7 Earned Value Management Charts (U). This document is "~~FOUO~~."
8. AN/TPY-2 CCLS Earned Value Management Charts (U). This document is "~~FOUO~~."
9. AN/TPY-2 Contract Baseline (U). This document is "~~FOUO~~."
10. AN/TPY-2 Exit Criteria (U). This document is "~~FOUO~~."

cc:

MDA/DX
MDA/DE
MDA/DA
MDA/DP
MDA/DO
MDA/DT
MDA/DS
MDA/BC
MDA/TH
MDA/SNXD

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Schedule
Baseline

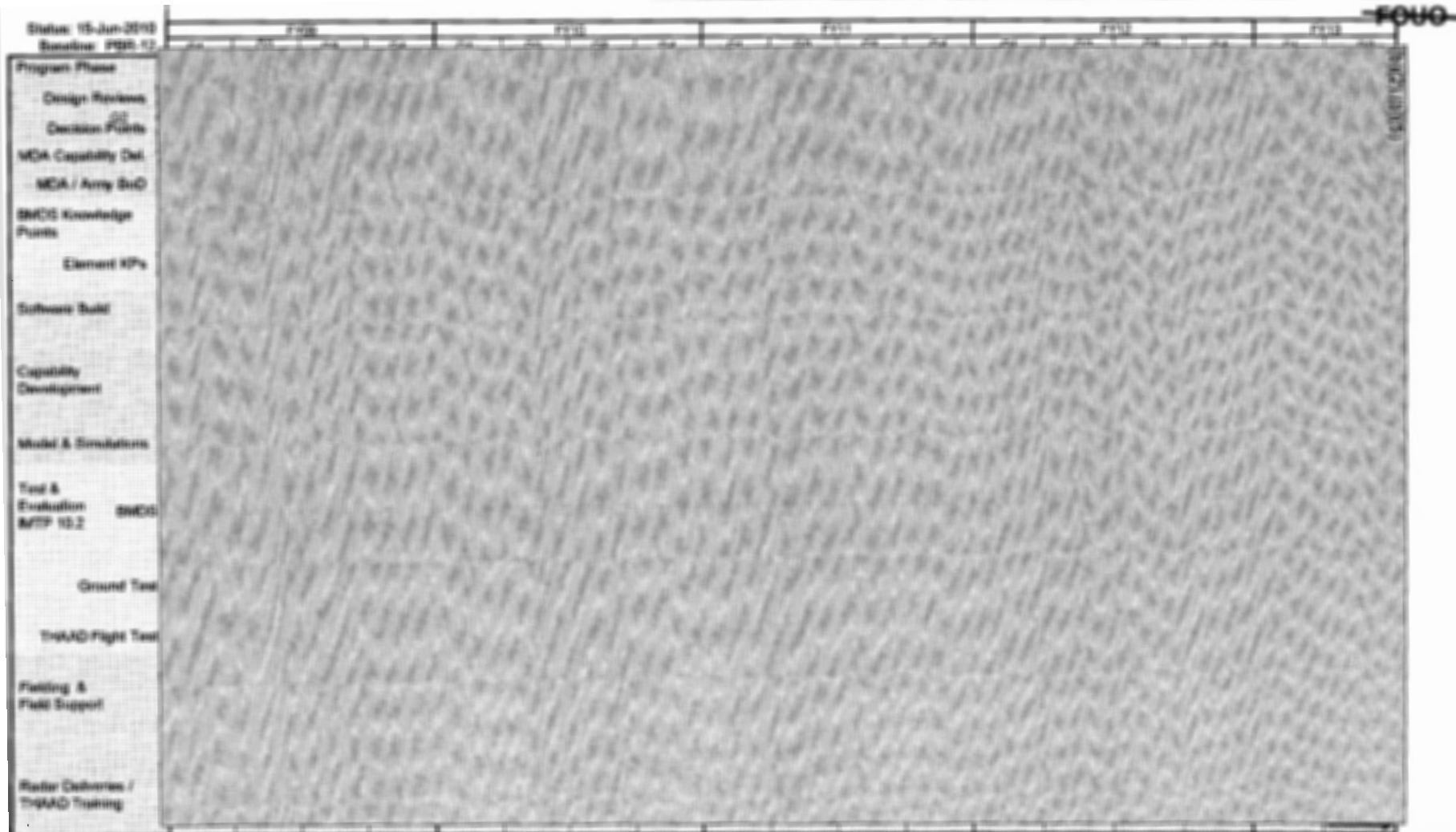
AN/TPY-2 Program (CD-03, CD-04)

Schedule Baseline (U)

Notes:

- CD-04 2QFY14
- Fwd-Based Mode (FBM) & Terminal Mode (TM)
Material Release to be addressed at future PCB.

~~FOUO~~



~~FOUO~~

Critical Milestones highlighted in Yellow

Attachment 1

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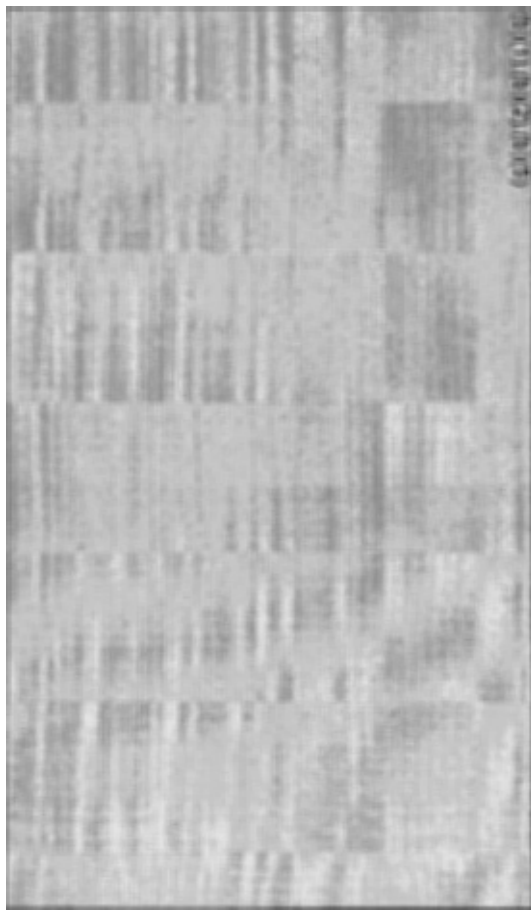


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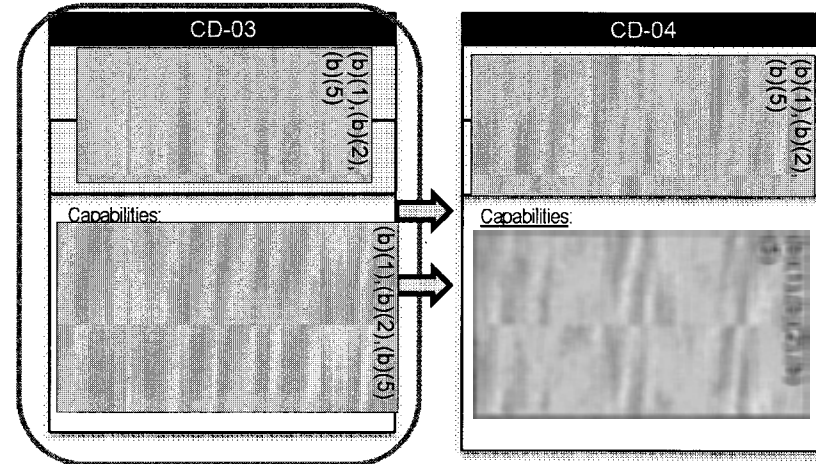
Technical
Baseline

AN/TPY-2 Program (CD-03, CD-04) Technical Baseline (U)





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Prioritized Capabilities List (PCL) 2009	
Combatant Command Capability Needs	Enduring Capabilities
	

Current (CD-03) and Future (CD-04) Capabilities



CD-03 and CD-04 Knowledge Points

KP#	Description	Demonstrated by	Completed
1		GTD-02 Approved May 2007	✓
2		FTX-02 (Mar-07) Approved May 2007	✓
3		Production Readiness Risk Assessment (PRRA); est Sep-2010	
4		FTT-12 (4QFY11)	

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Attachment 2

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Approved: 

(b)(6)

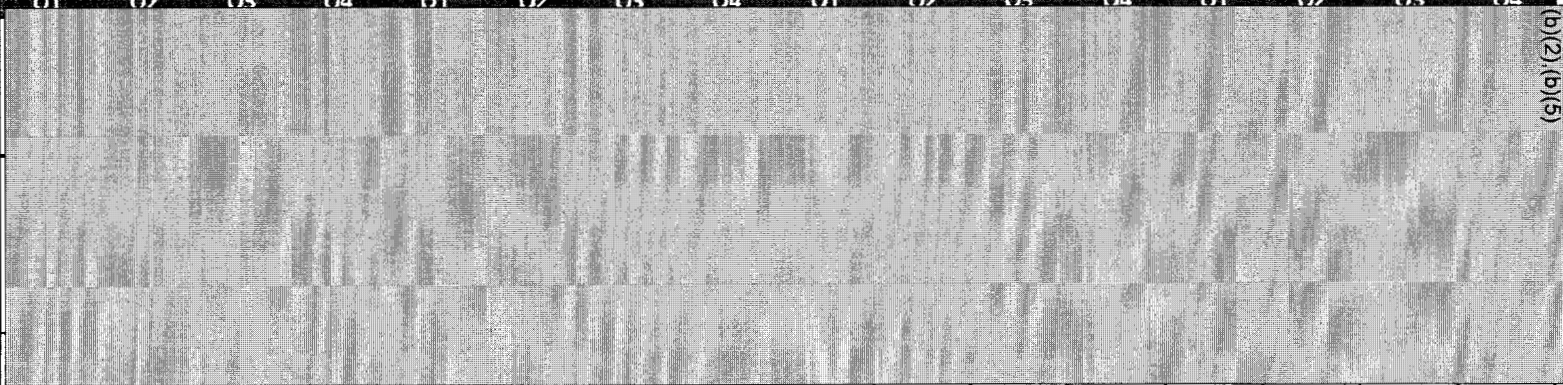
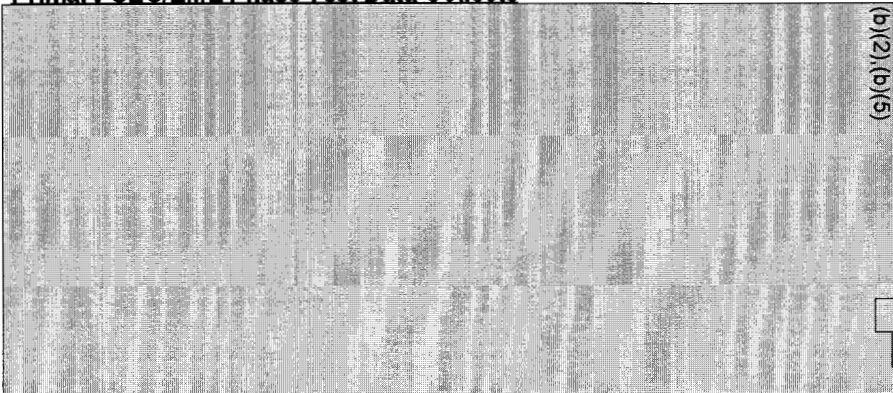



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AN/TPY-2 Program (CD-03, CD-04) Test Baseline (U)

IAW IMTP 10.2 BMDS Test Baseline

Test
Baseline

AN/TPY-2 Program Plan		FY09				FY10				FY11				FY12					
		01	02	03	04	01	02	03	04	01	02	03	04	01	02	03	04		
TEST EVENTS	System/Element Flight Tests																	(b)(2),(b)(5)	
	Systems Level																		
	GTX-Focused																		
	GTI-HWIL																		
	GTD-Distributed																		
	TA/PA-Dig Assessments																		
	Chamber / Lab / Simulation																		
Summary Information	Primary CEC/EME Phase Test Data Collects																		(b)(2),(b)(5)
		Additional Test Data Collection Opportunities																(b)(2),(b)(5)	
		GT-195 GT-199 JFTM-03 ATM-48 TH Govt Ground Test (GGT) TH Limited User Test (LUT)																	
		Acquisition Phase Test Configuration																(b)(2),(b)(5)	
		Software versions: 																	
		<p>* Element Flight Test Pending Near Term PAA phase 1 Flight Test Near Term PAA Phase 1 Ground Test Operational Flight Test CECs: Critical Engagement Conditions Mid-Term Flight Test Mid-Term Ground Test EMEs: Empirical Measurement Events Far-Term Flight Test Far-Term Ground Test KP: Knowledge Point</p>																	

FOUO

Attachment 3

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Approved:

(b)(6)

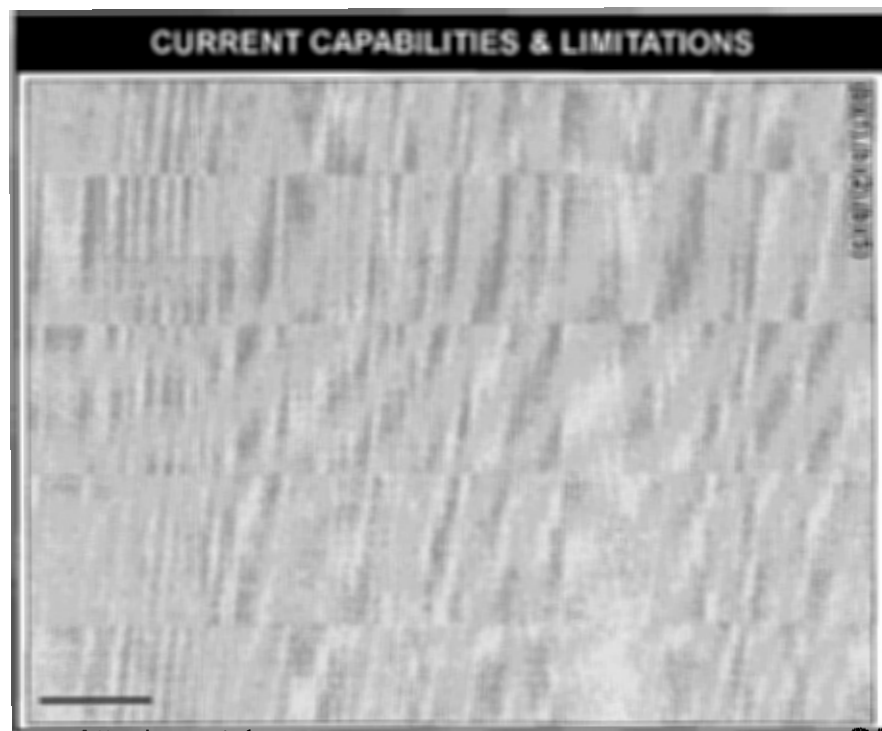


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AN/TPY-2 (FBM & TM) Program Operational Capacity Baseline (U)

Operational
Capacity
Baseline

FOUO	AN/TPY/2 Configuration	Status
	(b)(1),(b)(2),(b)(5)	(b)(1),(b)(2),(b)(5)



Attachment 4

FOUO	MDA Operational Capacity Delivery	DATE
Doctrine	(b)(1),(b)(2),(b)(5)	28 Feb 2010 ECD: (b)(1),(b)(2),(b)(5) 24 Mar 10, ECD: (b)(1),(b)(2),(b)(5) 6 Mar 10, ECD: (b)(1),(b)(2),(b)(5)
Organization/Personnel	(b)(1),(b)(2),(b)(5)	Effective: 16 Oct 2010 May 08 ECD: (b)(1),(b)(2),(b)(5)
Training	(b)(1),(b)(2),(b)(5)	4QFY10 FY10 Jun 09 ECD: (b)(1),(b)(2),(b)(5) Nov 08
Leadership and Education	(b)(1),(b)(2),(b)(5)	July 2010 Mar 10 Feb 08
BMD System Level Testing/Performance (FBM & TM)	(b)(1),(b)(2),(b)(5)	2QFY08/3QFY08/2QFY9 2QFY10/4QFY10 4QFY09 1QFY10

Forward-Based Mode (FBM)

Forward-Based Mode (FBM)

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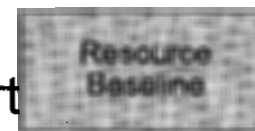
Approved:

(b)(6)

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AN/TPY-2 CD-03 and CD-04 BMDs Accountability Report Resource Baseline Summary (U)

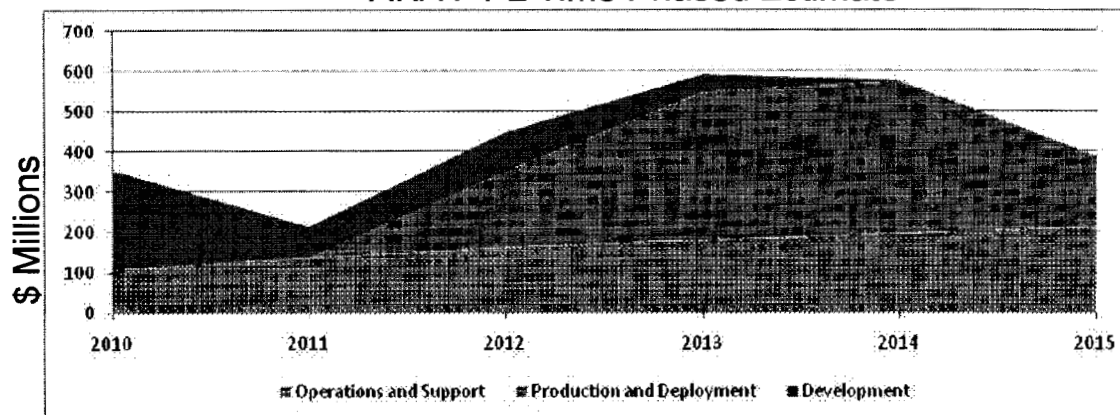
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Program Acquisition Unit Costs			
Component	Qty	Current Est (BY\$10M)	Baseline (BY\$10M)
Radar	14	218	218
Average Procurement Unit Costs			
Component	Qty	Current Est (BY\$10M)	Baseline (BY\$10M)
Radars (9-14)	6	177	177

Costs TY \$M	Sunk	2010	2011	2012	2013	2014	2015	FYDP Total	To Complete	Total
Hardware Development	82		30	28	22			80		162
Software Development	268	22						22		290
Testing	38	10	22	38	17			87		125
Integration	19	2	2	2	2			8		27
Test Item Manufacturing	1,079	211	22	30	2	1		266	61	1,406
PDSS		12	18	19	19	19	19	106	557	663
Test Item Sustainment	266	96	119	142	161	177	193	888	4,756	5,910
Development Total	1,752	353	213	259	223	197	212	1,457	5,374	8,583
Production and Deployment				188	367	378	176	1,109	37	1,146
Total Cost Estimate	1,752	353	213	447	590	575	388	2,566	\$,411	9,729

Cost Analysis Requirements Description					
CARD approval date: 19-Nov-2009					
Updated Annually					
Life Cycle Cost Estimate					
Date Approved: 28 April 2010					
Life Cycle Cost Estimate (BY\$10M)					
	Current Estimate			Baseline	Variance
	Sunk	To Go	Total		
Development	1,486	505	1,991	1,991	-
Hardware Development	82	77	159	159	-
Software Development	268	22	290	290	-
Testing	38	84	122	122	-
Test Item Manufacturing	1,079	314	1,393	1,393	-
Integration	19	8	27	27	-
Production and Deployment	-	1,063	1,063	1,063	-
Operations and Support	266	5,320	5,586		
Total Life Cycle	1,752	6,888	8,640		
Explanation of Variance					

AN/TPY-2 Time Phased Estimate



- Any shortfalls or excess funding will be covered by MDA/SN-wide reallocation of funds during on-going PBR12 process.

~~FOUO~~

Attachment 5

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Approved	(b)(6)
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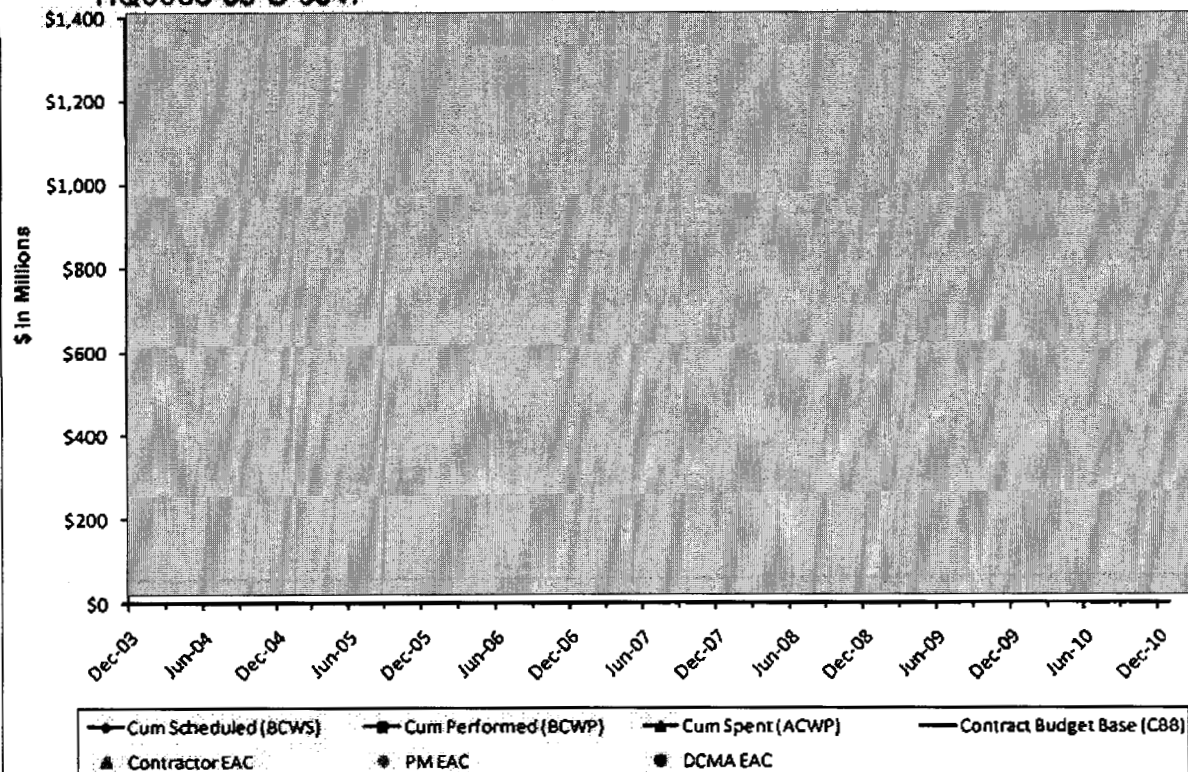
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AN/TPY-2 #2, 3, 5, & 6 (U)

Earned Value Management Data

MDA EVM Data - Apr 10 CPR Data

HQ0006-03-C-0047



Key Cost/Schedule Variance (CV/SV) Drivers

Cost: The Cum CV is (b)(4), (b)(5)

Schedule: The cum SV is (b)(4), (b)(5)

Projected Variance at Completion (VAC)

(b)(4), (b)(5)

Impacts (Cost, Schedule, Technical Funding)

(b)(4), (b)(5)

Prime Contractor	Contract Type	CPR	Variances	Cumulative	Current Month		EAC	VAC
Raytheon	CPAF	(b)(4), (b)(5)	SV	(b)(4), (b)(5)	(b)(4), (b)(5)	PM	(b)(4), (b)(5)	(b)(4), (b)(5)
Period of Performance	Last IBR Date	% Complete	CV			KTR		
Dec 2003 to Aug 2010	01-Oct-07	(b)(4), (b)(5)	Level of Effort (LOE) Percentage	(b)(4), (b)(5)		DCMA		

~~FOUO~~

(b)(6)



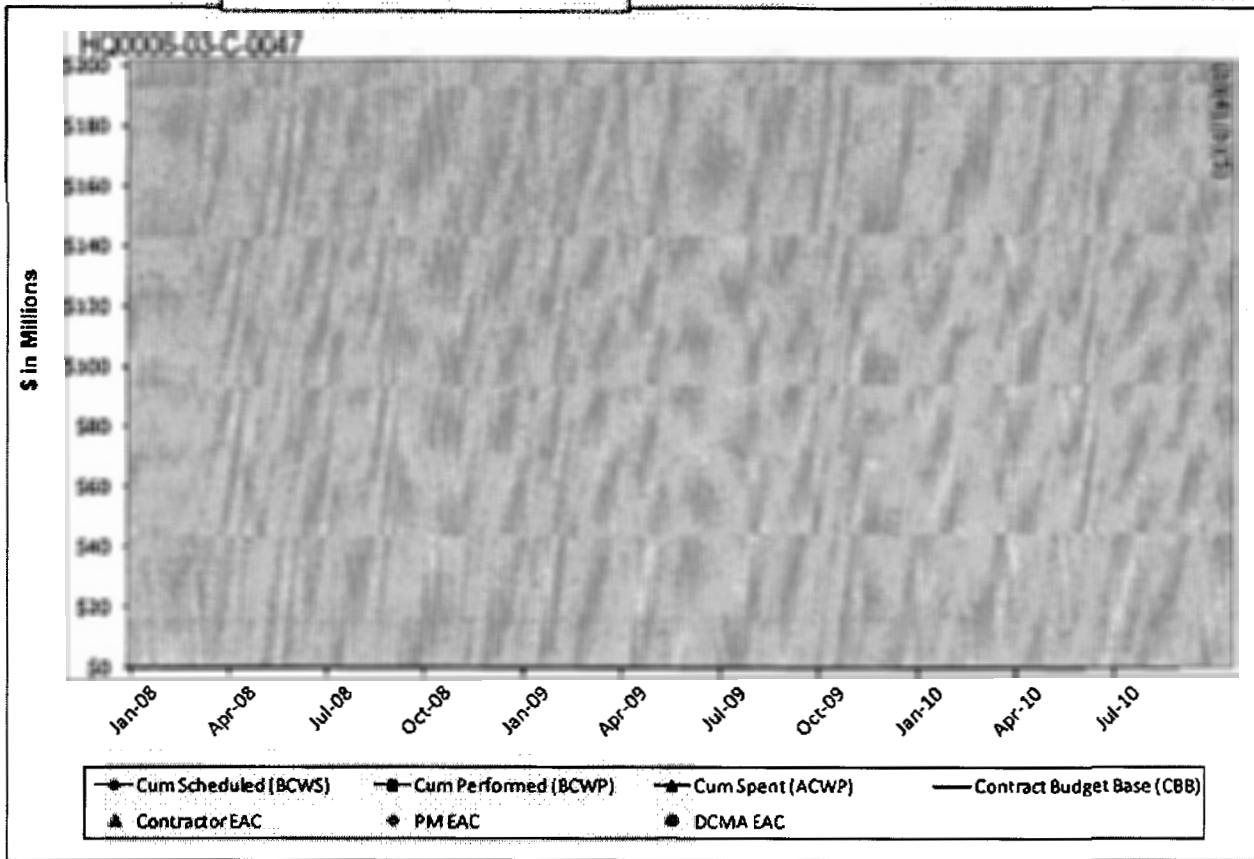
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AN/TPY-2 #7 (U)

Earned Value Management Data

FOUO

MDA EVM Data - Apr 10 CPR Data



Key Cost/Schedule Variance (CV/SV) Drivers

Cost: The Cum CV is (b)(4), (b)(5)

Schedule: The cum SV is (b)(4), (b)(5)

Projected Variance at Completion (VAC)

PM VAC is (b)(4), (b)(5)
KTR VAC is (b)(4), (b)(5)

Impacts (Cost, Schedule, Technical Funding): (b)(4), (b)(5)

Prime Contractor	Contract Type	CBB	Variances	Cumulative	Current Month		EAC	VAC
Raytheon	CPAF	(b)(4), (b)(5)	SV	(b)(4), (b)(5)	(b)(4), (b)(5)	PM	(b)(4), (b)(5)	(b)(4), (b)(5)
Period of Performance	Last ISR Date	% Complete	CV			KTR		
Feb 2007 to Aug 2010	01-Mar-08	(b)(4), (b)(5)	Level of Effort (LOE) Percentage	(b)(4), (b)(5)		DCMA		

FOUO

(b)(4)



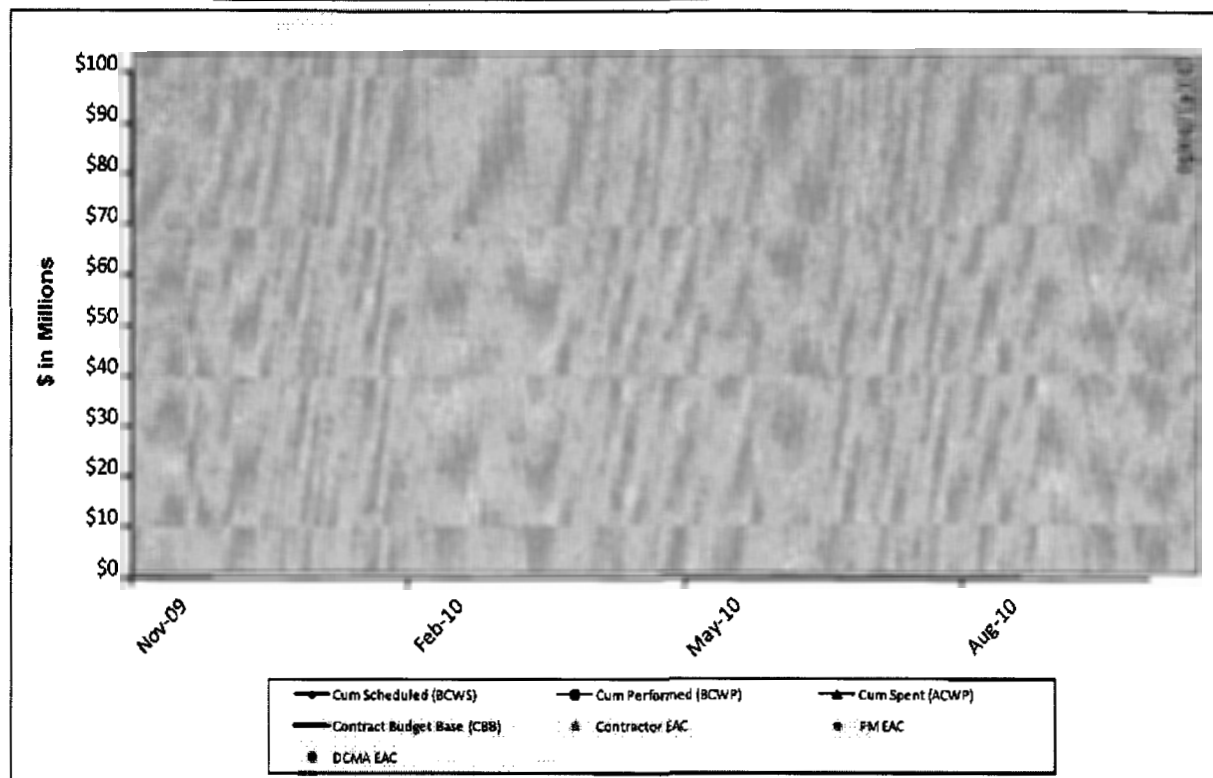
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CCLS Task Order 8 AN/TPY-2 (Radars #2, 3, 5, 6, 7) (U)

Earned Value Management Data

~~FOUO~~

MDA EVM Data - May 10 CPR Data



Key Cost/Schedule Variance (CV/SV) Drivers

Cost: The Cum CV is

Schedule: The cumulative schedule variance is

Projected Variance at Completion (VAC)

PM VAC is

KTR VAC is

Impacts (Cost, Schedule, Technical Funding):

Prime Contractor	Contract Type	CBB	Variances	Cumulative	Current Month		EAC	VAC
Raytheon	CPAF		SV			PM		
Period of Performance	Last IBR:	% Complete	CV			KTR		
Nov 09 to Sep 10			Level of Effort (LOE) Percentage			DCMA	NA	NA

~~FOUO~~

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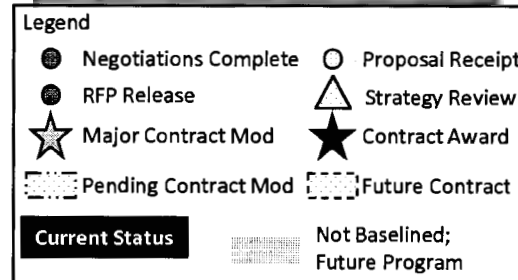
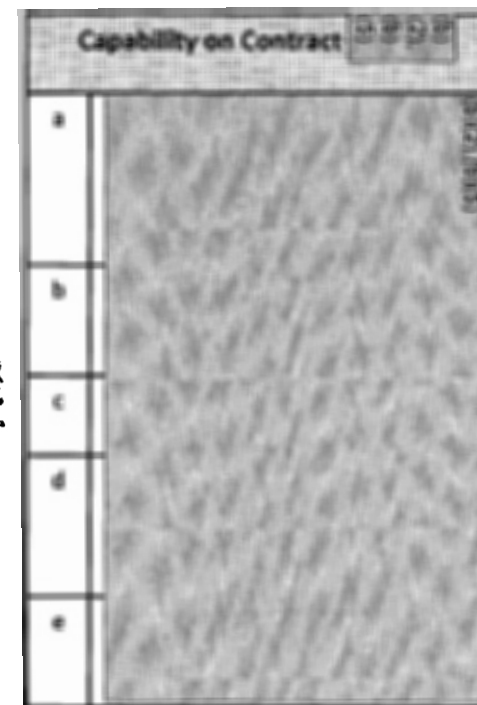
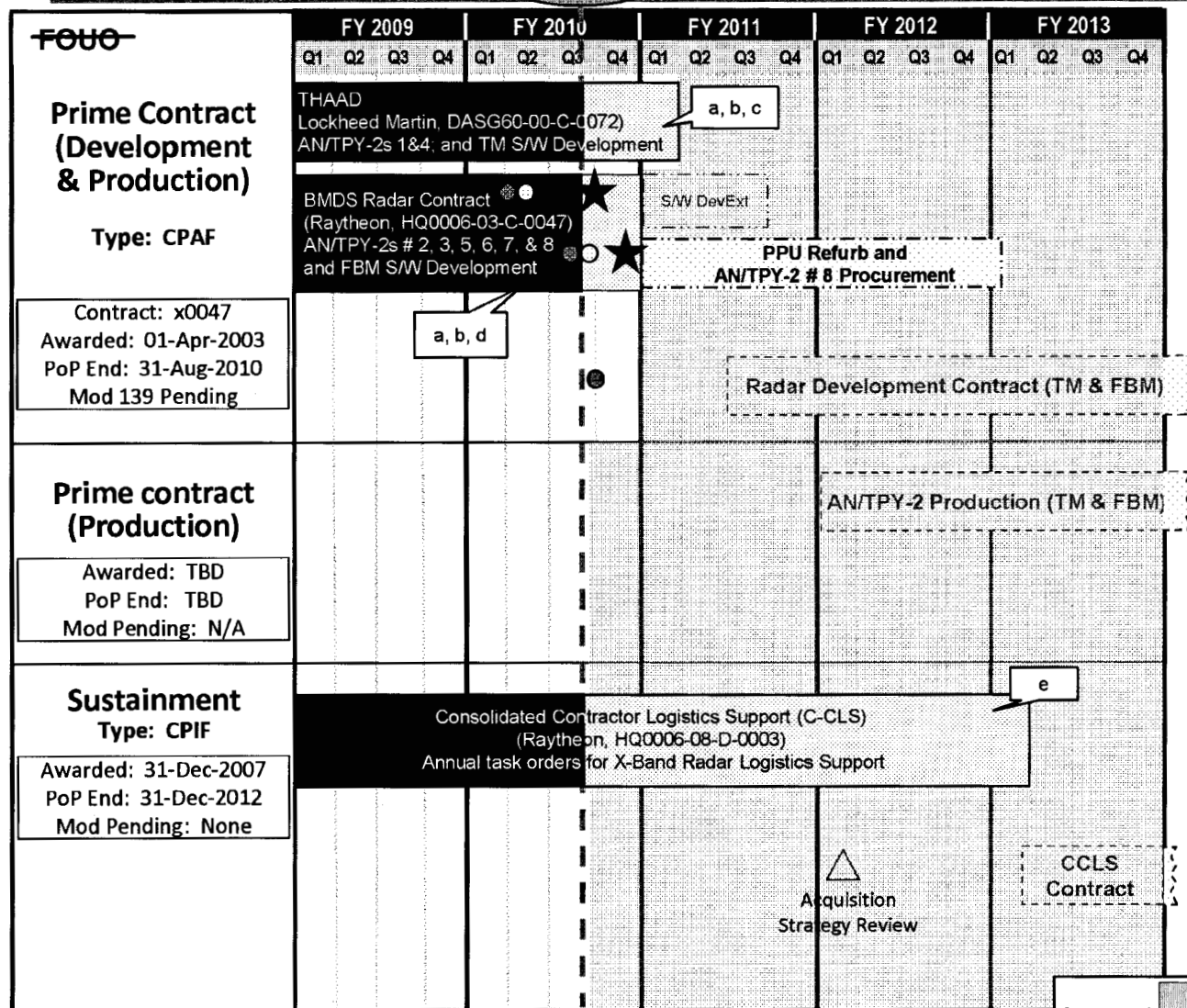


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Contract
Baseline

AN/TPY-2 Program (CD-03, CD-04) DBR Contract Baseline (U)

Time Now



Approved:

~~FOR OFFICIAL USE ONLY~~

~~FOUO~~

(b)(2),
(b)(5)



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Exit
Criteria

AN/TPY-2 Program Exit Criteria

Product Development Phase to Production Phase (U)

~~FOUO~~

	Exit Criteria	Baseline	TM Status	TM Prod Decision	FBM Status	FBM Prod Decision
1	Verified Requirement					
1a	AN/TPY-2 System Specification traced to BMD System Specification Build C	Technical	Completed September 2008	C	Completed September 2008	C
1b	Approved Capability Production Document	Technical	CPD	C	CPD Update	
1c	PIDS Requirements Verification	Technical	ECD Jul 10		ECD Jul 10	
2	Design is stable					
2a	Weapon System Production Qualification complete for all components and subassemblies	Technical	GGT ECD Sep 10		GGT ECD Sep 10	
3	Test results support confidence that the user needs will be met					
3a	ATEC Operational Assessment Report (OAR) – Effectiveness, Suitability, and Survivability Assessment	Test	ECD Nov 10		CD-03 OAR	
4	Projected quantities are affordable					
4a	Approved MDA/CARD	Resource	November 2009	C	November 2009	C
4b	Independent Cost Estimate, Completed by CAPE	Resource	ECD 1QFY11		ECD 1QFY11	
4c	Full funding for Procurement and Operations and Sustainment	Resource	PB 11		PB 11	
5	Manufacturing processes are in control					
5a	No significant manufacturing risks	Technical	PRRA-2007 Update ECD 1QFY11		PRRA-2007 Update ECD 1QFY11	
5b	Industrial Capabilities Assessment (ICA); update in progress	Technical	ECD 30-Oct-2011		ECD 30-Oct-2011	
6	Plans for operations are in place					
6a	Supportability Strategy approved (IAW AR 700-127)	Operational	TM-Nov 09	C	MDA Support Strategy In Coordination	
6b	Material Fielding plan approved by FORSCOM (IAW AR 700-142)	Operational	In Staffing		T2 MOA in Staffing	
6c	Approved STRAP and Training Support Plan	Operational	STRAP Dec 09 TSP Nov 08	C	N/A	N/A

Risk to Execution

Low ☒ Medium ☒ High ☒ Complete ☒

~~FOUO~~

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3.3.1 Aegis BMD 4.0.1/SM-3 Block IB (U)

~~SECRET~~

~~SECRET~~

JUN 30 2010

MEMORANDUM FOR PROGRAM MANAGER, AEGIS BMD 4.0.1/SM-3 BLOCK
IB, MISSILE DEFENSE AGENCY

SUBJECT: Development Decision Memorandum for Aegis BMD 4.0.1/SM-3 Block IB
Baseline Review (U)

(U) The attached schedule, technical, test, operational, resource, and contracts
baselines and activities are approved for Aegis BMD 4.0.1/SM-3 Block IB.

(U) Changes to the BMDS baseline are managed through the Missile Defense
Agency (MDA) Program Change Board (PCB) in accordance with MDA Directive
5000.04. PCB-approved changes that affect the Aegis BMD 4.0.1/SM-3 Block IB
acquisition, development and or fielding will be implemented by the Aegis BMD
4.0.1/SM-3 Block IB Program Office and documented in the Single Acquisition
Management Plan. Baseline variations will be reported to the MDA Director, Assistant
Secretary of the Navy (ASN (RDA)) and in the annual BMDS Accountability Report.

(U) The following activities are directed to occur during the remainder of the
Aegis BMD 4.0.1/SM-3 Block IB Product Development Phase:

- Independent cost estimate by D,CAPE
 - Before initial production decision 3Q FY2011
 - Before production review 4Q FY2012
- Weapon System demonstration 3Q FY2010
- Missile manufacturing readiness review 2Q FY2011
- FTM-16 flight test round - permit to ship 2Q FY2011
- FTM-16 2Q FY2011
- Obtain initial production decision by USD(AT&L) to acquire
a total of 74 missiles (8 with FY11 funds, 66 with
FY12 funds) 3Q FY2011
- Navy combat system and weapon certification
(auth. to operate) 4Q FY2011
- TDACS qualification for full functionality 2Q FY2011
- FTM-19E2 and FTM-20E2 (2 complex SRBMs) 1Q FY2012
- FTM-22E2 and FTM-23 (1 SRBM and 1 IRBM) 3Q FY2012

~~Derived from: Multiple Sources~~

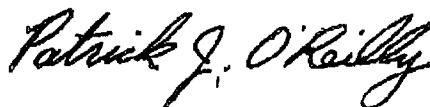
~~Declassify on: May 2034~~

~~SECRET~~

(U) The criteria to exit the Product Development Phase (Attachment 7) are also approved. A Development Baseline Review is expected in 4QFY12 prior to an USD (AT&L) production decision to enter Production Phase.



SEAN J. STACKLEY
Assistant Secretary of the Navy
Research, Development & Acquisition



PATRICK J. O'REILLY
Lieutenant General, USA
Director

Attachments:

1. Aegis BMD 4.0.1/SM-3 Block IB Schedule Baseline. This document is "~~FOUO~~".
2. Aegis BMD 4.0.1/SM-3 Block IB Technical Baseline. This document is "~~SECRET~~".
3. Aegis BMD 4.0.1/SM-3 Block IB Test Baseline. This document is "~~FOUO~~".
4. Aegis BMD 4.0.1/SM-3 Block IB Operational Capacity Baseline. This document is "~~SECRET~~".
5. Aegis BMD 4.0.1/SM-3 Block IB Resource Baseline. This document is "~~FOUO~~".
6. Aegis BMD 4.0.1/SM-3 Block IB Contract Baseline. This document is "~~FOUO~~".
7. Aegis BMD 4.0.1/SM-3 Block IB Exit Criteria. This document is "~~FOUO~~".
8. Aegis BMD 4.0.1/SM-3 Block IB Earned Value. This document is "~~FOUO~~".

cc:

ASN RDA
MDA/DX
MDA/DE
MDA/DO
MDA/DA
MDA/DP
MDA/DT
MDA/DS
MDA/AB
IWS/1.0
OPNAV N86



~~SECRET~~

Technical
Baseline

BMD 4.0.1/SM-3 BLOCK IB Program

Technical Baseline (U)

Current and Future Capabilities (U)

Prioritized Capabilities List (PCL) 2009	
Combatant Command Capability Needs	Enduring Capabilities
(b)(1),(b)(2),(b)(5)	(b)(1),(b)(2),(b)(5)

~~FOUO~~

Aegis BMD 4.0.1

Enhanced Use and Support of BMDS ESGs
(SRBM, MRBM & Limited IRBM)(U)

(b)(1),(b)(2),(b)(5)

Aegis BMD 5.0

(b)(1),(b)(2),(b)(5)

Knowledge Points (U)

KP #	Description	Demonstrated by	Complete
1	(b)(1),(b)(2),(b)(5)	(b)(1),(b)(2),(b)(5)	(b)(1),(b)(2),(b)(5)
2	(b)(1),(b)(2),(b)(5)	(b)(1),(b)(2),(b)(5)	(b)(1),(b)(2),(b)(5)
3	(b)(1),(b)(2),(b)(5)	(b)(1),(b)(2),(b)(5)	(b)(1),(b)(2),(b)(5)

Approved: (b)(6)

~~FOUO~~

~~SECRET~~



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Test
Baseline

BMD 4.0.1/SM-3 BLOCK IB Program

Test Baseline IAW Current BMDS Baseline (IMTP 10.2) (U)

~~FOUO~~

4.0.1/IB Program Plan

FY10

FY11

FY12

Q1

Q2

Q3

Q4

Q1

Q2

Q3

Q4

Q1

Q2

Q3

Q4

TEST EVENTS

Summary Information

Primary/Secondary Phase Test Data Collection

Today

Additional Test Data Collection Opportunities

FTM-17 (complete)
JFTM-3 (complete)
JFTM-4 (1QFY11)
FTG-06a (1QFY11)
FTM-21 E1/E2/E3 (1QFY13)
FTT-15 (2QFY13)
FTM-19 E1 (3QFY13)
FTM-20 E1 (4QFY13)
FTX-12 (4QFY13)
FTO-02 (3QFY15)
FTX-14 (1QFY15)
FTM-24 (4QFY15)
GTI-04e (DT/OT) (2QFY13 - 4QFY13)
GTI-04e (OT) (4QFY13)
GTD-04e (DT/OT) (3QFY13 - 4QFY13)
GTD-04e (OT) (4QFY13)
PA04 (V&V) (4QFY12-2QFY13)
PA04 (DT) (2QFY13)
PA04 (OT) (3QFY13-4QFY13)

Acquisition Phase Test Configuration

Software versions

BMD 4.0.1

* Element Flight Test Pending
CECs: Critical Engagement Conditions
EMEs: Empirical Measurement Events
KP: Knowledge Point

△ PAA phase 1 Flight Test
△ Near-Term Flight Test
○ Mid-Term Flight Test
◇ Far-Term Flight Test

□ PAA Phase 1 Ground Test
□ Near-Term Ground Test
□ Mid-Term Ground Test
□ Far-Term Ground Test

△ ○ ◇ Operational Flight Test

Approved:

(b)(2), (b)(5)

(b)(6)

~~FOUO~~

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~~SECRET~~

Operational
Capacity
Baseline

BMD 4.0.1/SM-3 BLOCK IB Program

Operational Capacity Baseline (U)

Aegis BMD 4.0.1 /SM-3 BIK IB Fielding Plan	FY	MDA Operational Capability Delivery	DATE
(b)(1),(b)(2),(b)(5)	(b)(1),(b)(2),(b)(5)	Doctrine	3QFY11 3QFY11
		Organization/Personnel • Navy Manning Plan (NMP)	Navy Responsibility
		(S)(U)(C)(I)(F)	3FY11
		Leadership and Education • Will follow officer/enlisted ship training pipeline	Navy Responsibility
		(b)(1),(b)(2),(b)(5)	2QFY12 1QFY12 4QFY12 1QFY13
		(b)(1),(b)(2),(b)(5)	4QFY11
FOUO		(b)(1),(b)(2),(b)(5)	3FY14

FOUO



Approved: (b)(6)

~~SECRET~~



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BMD 4.0.1/SM-3 BLOCK IB Program Resource Baseline (U)

Resource
Baseline

Program Acquisition Unit Costs (BY10\$M)			
Component	Qty	Current Est	Baseline
SM-3 Block IB AURs	193	20	20
BMD 4.0.1 Shipsets	15	186	186
Average Procurement Unit Costs (BY10\$M)			
Component	Qty	Current Est	Baseline
SM-3 Block IB AURs	160	10	10
BMD 4.0.1 Shipsets	13	36	36

•APUC calculation derived using the RDT&E funds applied to producing the BMD 4.0.1 shipsets

Costs TY \$M	Sunk	2010	2011	2012	2013	2014	2015	FYDP Total	To Complete	Total
Hardware Development	793	205	202	62	66	55	57	647		1440
Software Development	929	151	62	83	30	61	29	416		1345
Testing		43	59	119	106	113	93	532		532
Test Item Manufacturing	29	73	189	150	131	148	56	748	67	844
Integration		82	94	68	57	73	61	435	30	465
Operations and Support		7	14	24	53	78	60	237	426	663
Development Total	1751	562	621	506	441	529	357	3016	523	5289
Production and Deployment				279	266	492	563	1599		1599
Total Cost Estimate	1751	562	621	785	707	1020	919	4614	523	6888

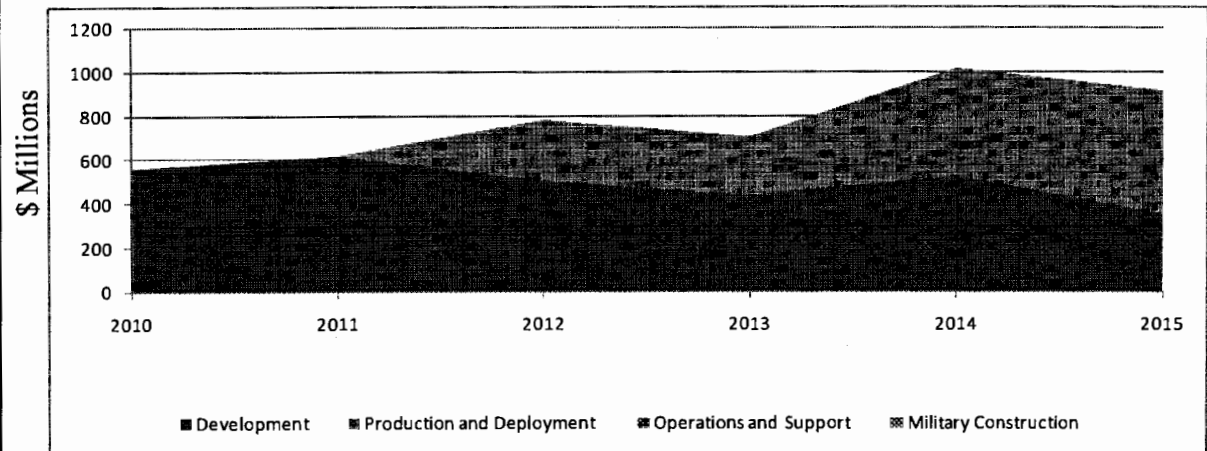
~~FOUO~~

~~FOUO~~

SM-3 Block IB BMD 4.0.1 Cost Estimate Description Documentation					
Cost Analysis Requirements Description					
CARD approval date: 10/30/2009					
Updated Annually					
Life Cycle Cost Estimate					
Date Approved: MDA Cost Estimate approved 01/04/2010					
Life Cycle Cost Estimate (BY10\$M)					
	Sunk	Current Estimate To Go	Baseline Total	Variance	
Development	1,751	3,339	5,090	5,090	-
Hardware Development	793	625	1,418	1,418	-
Software Development	929	402	1,330	1,330	-
Testing	-	504	504	504	-
Test Item Manufacturing	29	774	803	803	-
Integration	-	443	443	443	-
Operations and Support	-	591	591	591	-
Production and Deployment	-	1,476	1,476		
Total Life Cycle	1,751	4,816	6,567		
Explanation of Variance					

~~FOUO~~

Time Phased Estimate Chart



~~FOUO~~

Approved: (b)(6)



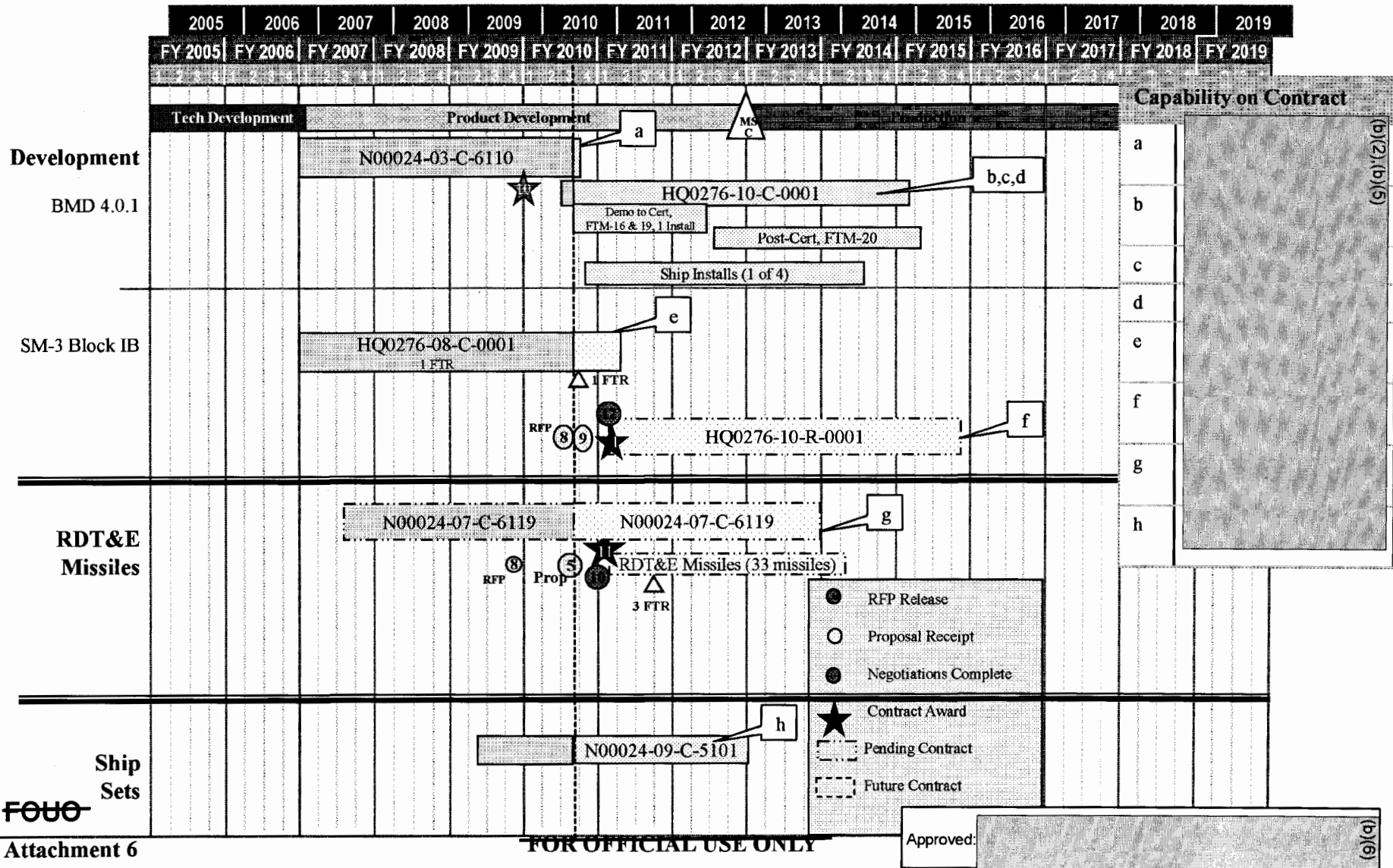
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BMD 4.0.1/SM-3 BLOCK IB Program

Contract Baseline (U)

Contract
Baseline

~~FOUO~~





~~FOR OFFICIAL USE ONLY~~

BMD 4.0.1/SM-3 BLOCK IB Program

Product Development Phase Exit Criteria (U)

~~FOUO~~

#	Exit Criteria	Baseline	Req'd For Init Prod Decision	Required for FRP Decision
1	Verified Requirements			
1a	All system engineering/design requirements defined, traced and validated	Operational		
1b	SM-3 Blk IB Production line qualified (Green at FTM-16 FTR Permit to Ship)	Operational	Y	Y
1c	KW DVT, Environmental DVT, and Qualification (Green at the successful completion of TDACS Qual 3)	Technical	Y	Y
2	Affordable (FYDP and Beyond)			
2a	CARD Approved	Resource		
2b	Independent Cost Estimate and Independent Government Estimates complete (Green when IGE completed in Dec 09 and ICE completed in 2QFY12)	Resource	Y	Y
3	Achievable Design			
3a	SM-3 BLK IB design validation (Green at successful FTM-16)	Test	Y	Y
3b	Developmental/Operational Tests (DT/OT) in progress and interim report supports an operationally effective and suitable assessment upon completion of OT&E (Green at successful intercept in FTM-16)	Test		Y
4	Manufacturing Plans			
4a	Subsystem EMRL ¹ at 4 minimum (Manufacturing Readiness Level 9 ²)	Operational		
4b	Validated initial production line (Green at completion of CLIN 16)	Operational	Y	Y
5	Sustainability Plans			
5a	Supportability Strategy approved by Navy			
5b	All quality and reliability levels established and verified	Operational		
6	Weapons System Explosives Safety Review Board			
6a	Hazard Assessment and Insensitive Munitions testing complete (Green at successful completion of HAT)	Technical	Y	Y
6b	System obtains final WSESRB approval (Green at successful completion of HAT)	Operational		Y
7	Verified program execution and operational transition alignment with Navy PEO IWS and SEA 21			

~~FOUO~~

1. EMRL 4 Similar system, component or item previously produced or in production. Or, the system, component or item is in low rate initial production. Ready for full rate production. During low rate initial production all systems engineering/design requirements should be met and there should only be minimal system engineering/design changes.

2. MRL 9 Major system design features are stable and proven in test and evaluation. Materials are available to meet planned rate production schedules. Manufacturing processes and procedures are established and controlled to three-sigma or some other appropriate quality level to meet design key characteristic tolerances in a low rate production environment. Production risk monitoring ongoing. LRIP cost goals met, learning curve validated. Actual cost model developed for FRP environment, with impact of Continuous improvement.

Risk to Execution

Low
Medium
High

Y

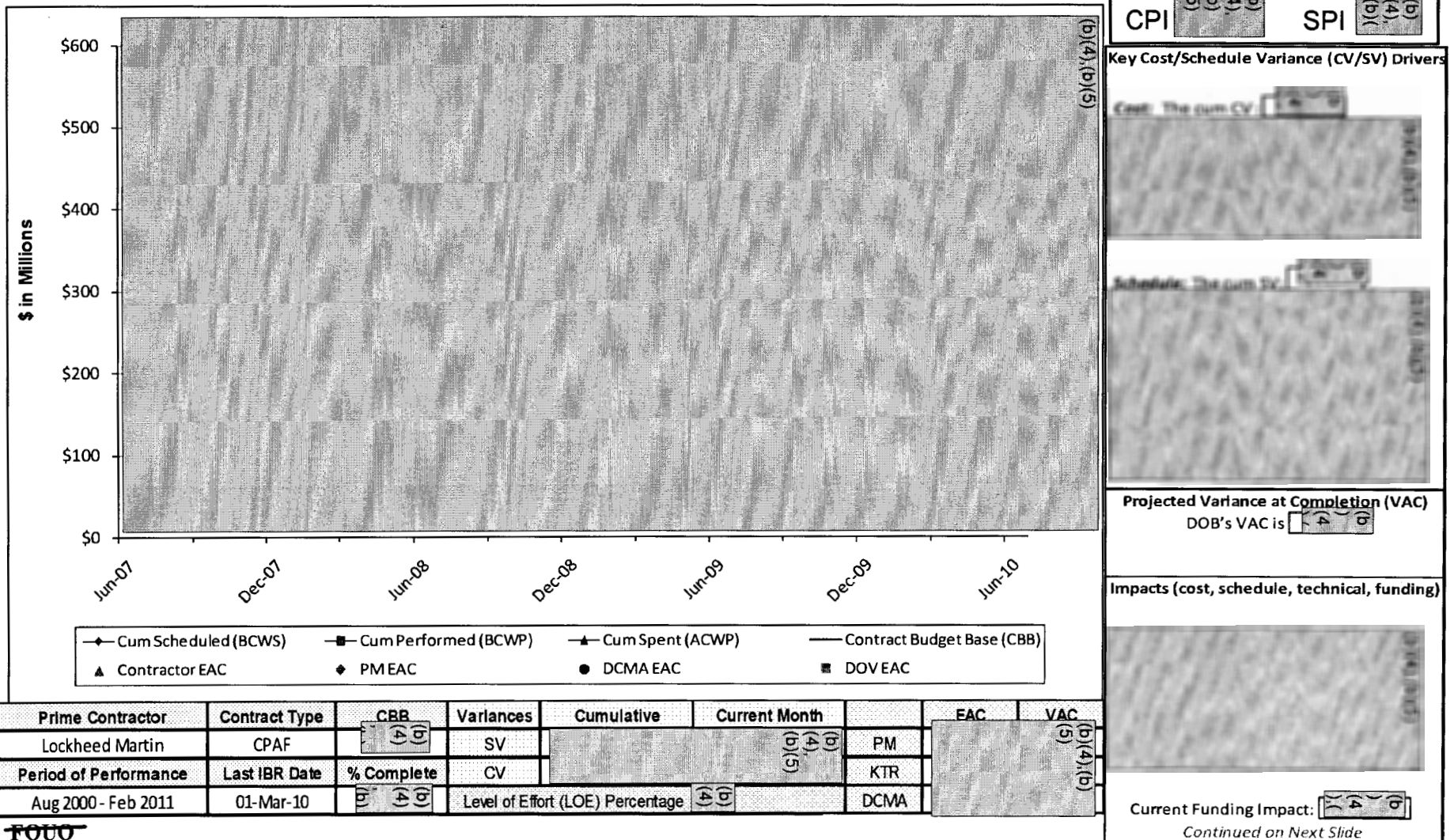


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BMD 4.0.1/SM-3 BLOCK IB Program

Aegis BMD 4.0.1 Earned Value Management Data (U)

FOUO



FOUO

Attachment 8a

FOR OFFICIAL USE ONLY

Approved: (b)(6)

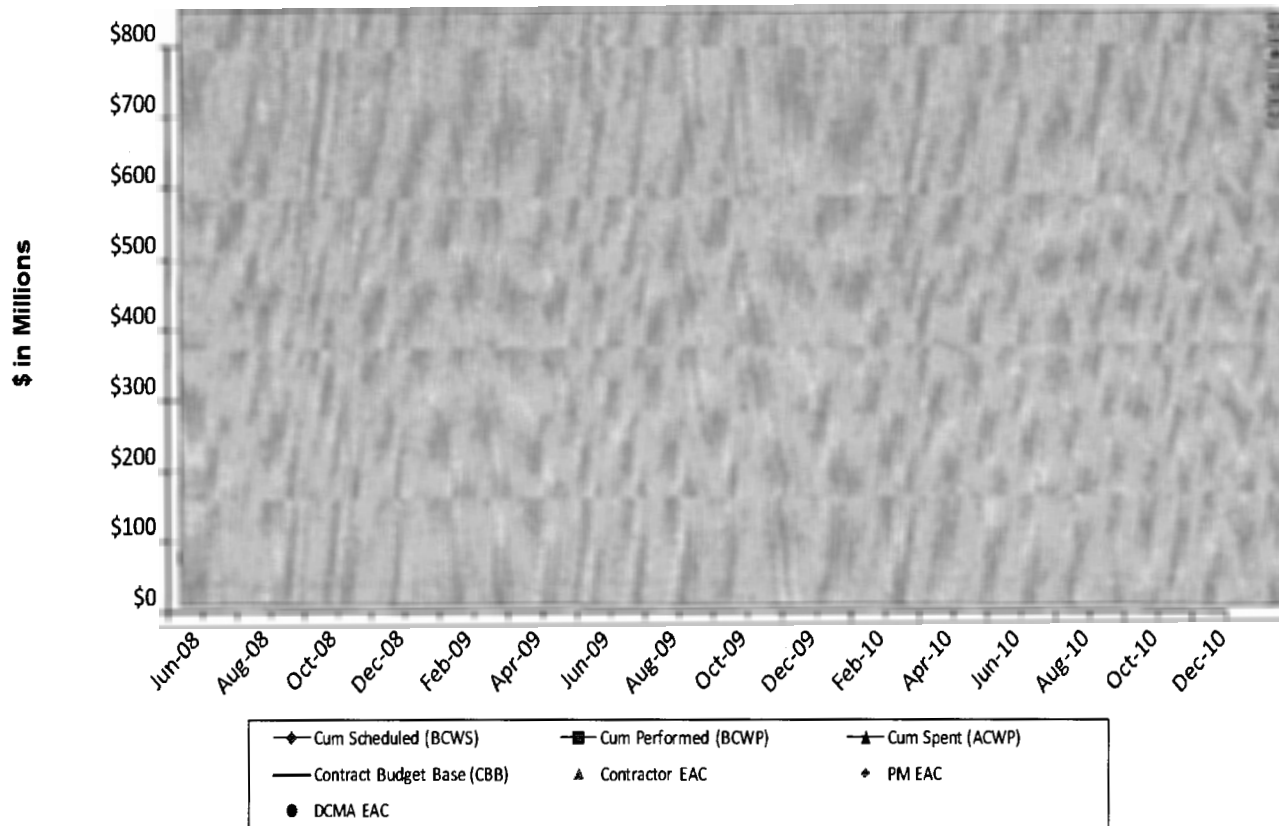


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BMD 4.0.1/SM-3 BLOCK IB Program

SM-3 Block IB Earned Value Management Data (U)

~~FOUO~~



CPI

SPI

Key Cost/Schedule Variance (CV/SV) Drivers

Cost: The cum CV is:

(b)(4), (b)(5)

Schedule: The cum SV is:

(b)(4), (b)(5)

Path Forward:

(b)(4), (b)(5)

Projected Variance at Completion (VAC)

DOB's VAC is:

(b)(4), (b)(5)

Impacts (cost, schedule, technical, funding)

Cost Impact:

(b)(4), (b)(5)

Prime Contractor	Contract Type	CBB	Variances	Cumulative	Current Month	EAC	VAC
Raytheon	CPAF	(b)(4), (b)(5)	SV	(b)(4), (b)(5)	PM	(b)(4), (b)(5)	(b)(4), (b)(5)
Period of Performance	Last IBR Date	% Complete	CV		KTR		
Dec 2007 - Dec 2010	08-Dec-09	(b)(4), (b)(5)	Level of Effort (LOE) Percentage	16%	DCMA		

~~FOUO~~

Attachment 8b

~~FOR OFFICIAL USE ONLY~~

Approved:

(b)(6)

~~SECRET~~

3.3.2 Aegis Ashore (U)

~~SECRET~~

~~SECRET~~

JUN 30 2010

MEMORANDUM FOR PROGRAM MANAGER, AEGIS ASHORE, MISSILE
DEFENSE AGENCY

SUBJECT: Development Decision Memorandum for Aegis Ashore Baseline Review(U)

(U) The attached schedule, technical, test, operational, resource, and contracts baselines and activities are approved for Aegis Ashore (AA).

(U) Changes to the BMDS baseline are managed through the Missile Defense Agency (MDA) Program Change Board (PCB) in accordance with MDA Directive 5000.04. PCB-approved changes that affect the AA acquisition, development and or fielding will be implemented by the AA Program Office and documented in the Single Acquisition Management Plan. Baseline variations will be reported to the MDA Director, Assistant Secretary of the Navy (ASN (RDA)) and in the annual BMDS Accountability Report.

(U) The following activities are directed to occur during the remainder of the AA Product Development Phase:

- | | |
|---------------------------------------------------------|--------|
| • AA Delta Systems Requirement Review (SRR) | 4QFY10 |
| • AA Delta System Design Review (SDR) | 2QFY11 |
| • AA Delta Preliminary Design Review (PDR) | 3QFY11 |
| • AA Delta Critical Design Review (CDR) | 4QFY11 |
| • AA Engineering Agent "Deckhouse" Fabrication Complete | 4QFY11 |
| • AA Engineering Agent "Deckhouse" Site Prep Complete | 4QFY11 |
| • AA Combat System Integration Complete | 3QFY12 |
| • AA Deckhouse Disassembly Begins | 4QFY12 |
| • Navy's ACB12/TI12 DDG 113 Software Build 12 Complete | 1QFY13 |
| • AA Software Build 12 Complete | 2QFY13 |
| • AA Combat System Test and Preparation Complete | 4QFY13 |
| • AA Control Test Vehicle 01 E1/2 Firing (AACTV-01) | 4QFY13 |
| • AA Firing Test Mission 01 E1/E2 (AAFTM-01) | 3QFY14 |

~~Derived from: Multiple Sources~~

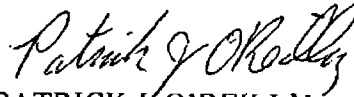
~~Declassify on: May 2034~~

~~SECRET~~

(U)The criteria to exit the Product Development Phase (Attachment 7) are also approved. A Development Baseline Review is expected in 4QFY14 prior to an USD (AT&L) production decision to enter Initial Production Phase.



SEAN J. STACKLEY
Assistant Secretary of the Navy
Research, Development & Acquisition



PATRICK J. O'REILLY
Lieutenant General, USA
Director

Attachments:

1. AA Schedule Baseline(U). This document is "~~FOUO~~"
2. AA Technical Baseline(U). This document is "~~SECRET~~"
3. AA Test Baseline(U). This document is "~~FOUO~~"
4. AA Operational Capacity Baseline(U). This document is "~~SECRET~~"
5. AA Resource Baseline(U). This document is "~~FOUO~~"
6. AA Contract Baseline(U). This document is "~~FOUO~~"
7. AA Exit Criteria(U). This document is "~~FOUO~~"
8. AA Earned Value(U). This document is "~~FOUO~~"

cc:

ASN RDA
MDA/DX
MDA/DE
MDA/DO
MDA/DA
MDA/DP
MDA/DT
MDA/DS
MDA/AB
IWS/1.0
OPNAV N86



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Schedule
Baseline

Aegis Ashore Program

Schedule Baseline (U)

** SM-3 Block 1B Missiles Acquired via ABMD 4.0.1 Program

FOUO		Status: 18 May 2010	2010	2011	2012	2013	2014	2015	2016	2017
Program Phase										
Program Reviews										
MDA/Navy BoD										
MDA Capability Delivery										
BMDS Knowledge Points										
Element KPIs										
Software Builds										
ACB12/T112 DDG 113										
Aegis Ashore										
Capability Development										
Deckhouse & Modules										
Site Preparations										
Combat Systems										
Test & Evaluation										
IMTP 10.2										
Fielding & Field Support - PMRF										
Fielding & Field Support - HNSF1										
** SM-3 Block 1B Missiles										

Critical Milestones highlighted in Yellow

FOUO

Attachment 1

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(b)(6)



~~SECRET~~

Technical
Baseline

Aegis Ashore Program

Technical Baseline (U)

Current and Future Capabilities

Prioritized Capabilities List (PCL) 2009	
Combatant Command Capability Needs	Enduring Capabilities
(b)(1),(b)(2),(b)(5)	(b)(1),(b)(2),(b)(5)

~~SECRET~~

Aegis Ashore PAA Phase 2	Aegis Ashore PAA Phase 3
(b)(1),(b)(2),(b)(5)	(b)(1),(b)(2),(b)(5)

FOUO

ID #	Knowledge Points Phase 2	Knowledge Points Phase 2	Date
	Description	Documentation	
1	(b)(1),(b)(2),(b)(5)	(b)(1),(b)(2),(b)(5)	
2			
3			
4			

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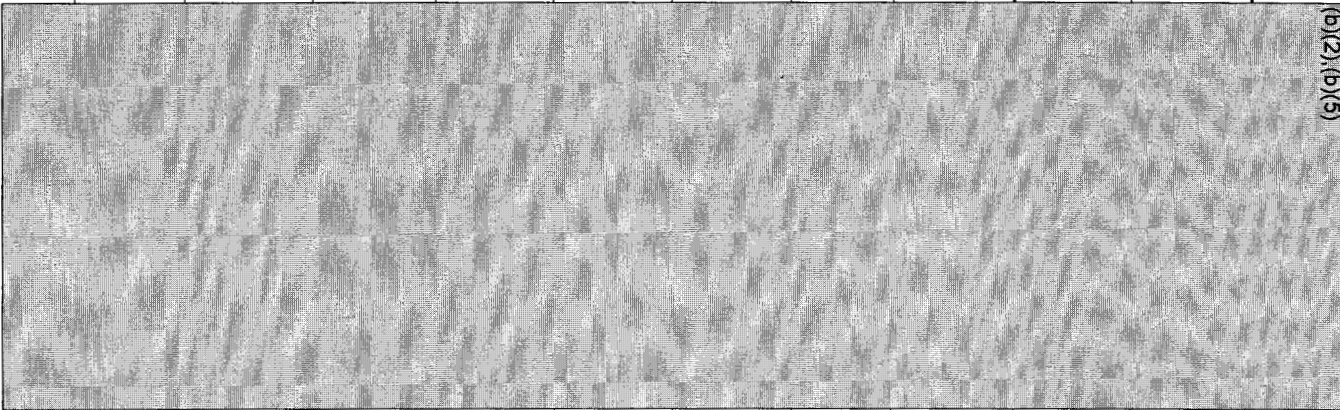
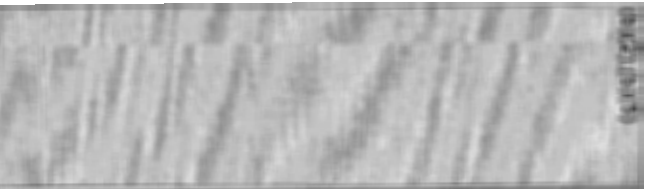

Approved:	(b)(6)
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Aegis Ashore Program Test Baseline (U)

Test
Baseline

AA Program Plan		FY13				FY14				FY15			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
TEST EVENTS	IMTP v. 10.2												
Summary Information	<u>Primary CEC/EME Phase Test Data Collects</u>					<u>Additional Test Data Collection Opportunities</u> FTX-06 (4.0.1) JFTM-3/4 (4.0.1) FTM-16 (SM-3 IB & 4.0.1) FTM-19 (SM-3 IB & 5.0) FTM-20 (SM-3 IB) FMT-21 (SM-3 IB) FTM-22 (SM-3 IB & 5.0) FTM-23 (SM-3 IB) FTM-24 (SM-3 IB) FTM-25 (SM-3 IB & 5.0) PA-06 FTO-02				<u>Acquisition Phase Test Configuration</u> Software versions BMD 5.0			
						Approved: 							
		<div><div><input type="checkbox"/> Near-Term PAA Phase 1 Flight Test</div><div><input type="checkbox"/> Near-Term PAA Phase 1 Ground Test</div></div> <div><div><input type="checkbox"/> Mid-Term PAA Phase 2 Flight Test</div><div><input type="checkbox"/> Mid-Term PAA Phase 2 Ground Test</div></div> <div><div><input type="checkbox"/> Far-Term PAA Phase 3 Flight Test</div><div><input type="checkbox"/> Far-Term PAA Phase 3 Ground Test</div></div> <div><div><input type="checkbox"/> Operational Test - Flight</div><div><input type="checkbox"/> Operational Test - Ground</div></div>											



~~SECRET~~

Operational
Capacity
Baseline

Aegis Ashore Program

Operational Capacity Baseline (U)

Aegis Ashore	FY

*SM-3 Block IB missiles to be acquired under the Aegis BMD 4.0.1/SM-3 Block IB Program

FOUO

Aegis Ashore CAPABILITIES & LIMITATIONS

~~SECRET~~

MDA Operational Capability Delivery	DATE
Doctrine (b)(1), (b)(2), (b)(5)	Q1FY11 Q2FY15
Organization/Personnel • Navy Manning Plan (NMP) • Organization and Regulation Manual (ORM)	Navy Responsibility
(b)(1), (b)(2), (b)(5)	Q2FY15 Q2FY15 Q2FY15
Leadership and Education • Will follow officer/enlisted ship training pipeline	Navy Responsibility
(b)(1), (b)(2), (b)(5)	Q3FY2015 Q3FY2015 Q4FY2015
(b)(1), (b)(2), (b)(5)	09/2013 2014 2015 2016
(b)(1), (b)(2), (b)(5)	Q1FY2015
(b)(1), (b)(2), (b)(5)	Q4FY2015

FOUO

Approved: (b)(6)

~~SECRET~~



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Resource
Baseline

Aegis Ashore Program Resource Baseline Summary (U)

Aegis Ashore Phase 2 Unit Cost Baseline			
Program Acquisition Unit Costs (BY10\$M)			
Component	Qty	Current Est	Baseline
Aegis Ashore Unit Cost Baseline	2	483	483
Average Procurement Unit Costs (BY10\$M) *			
Component	Qty	Current Est	Baseline
Aegis Ashore Unit Cost Baseline	1	272	272

~~FOUO~~

*APUC calculation derived using the RDT&E funds applied to producing Aegis Ashore.

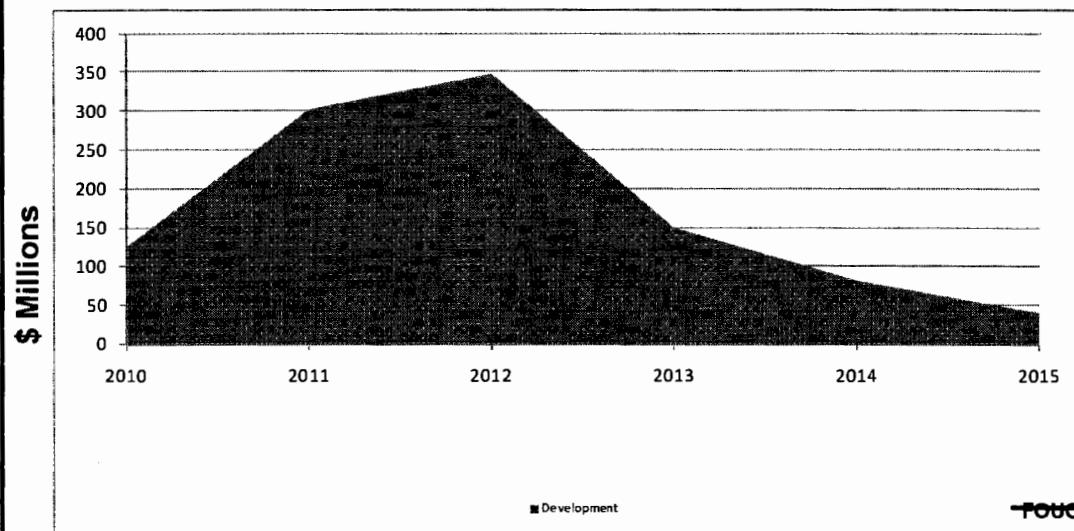
Time Phased Estimate (as of 05-25-10)									
Costs TY \$M	2010	2011	2012	2013	2014	2015	FYDP Total	To Complete	Total
Testing	0	0	0	37	0	0	37	0	37
Test Site Fabrication	95	272	145	55	62	35	664	3	668
Site 1 Fabrication	0	0	202	57	19	6	284	0	284
Integration	29	29	0	0	0	0	58	0	58
Development Total	124	302	348	150	81	41	1045	3	1048
Total Cost Estimate	124	302	348	150	81	41	1045	3	1048

~~FOUO~~

Aegis Ashore Phase 2 Cost Estimate Description Documentation				
Cost Analysis Requirements Description				
CARD approval date: 6/30/2010 (Estimated)				
Updated Annually				
Life Cycle Cost Estimate				
Date Approved: MDA Cost Estimate Approved 28 April 2010				
Life Cycle Cost Estimate (BY10\$M)				
	Current Estimate		Baseline	Variance
	To Go	Total		
Development	966	966	966	0
Testing	35	35	35	0
Test Site Fabrication	602	602	602	0
Site 1 Fabrication	272	272	272	0
Integration	57	57	57	0
Total Life Cycle	966	966	966	
Explanation of Variance				

~~FOUO~~

Time Phased Estimate Chart



~~FOUO~~

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Approved: _____





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Aegis Ashore Program

Product Development Phase Exit Criteria (U)

~~FOUO~~

#	Exit Criteria	Baseline	Required For Exit	Date
1	Verified Requirements			
1a	All system engineering/design requirements defined, traced and validated (i.e. Program Protection)	Operational		Q4 FY14
1b	SM-3 Blk IB Production line qualified	Operational		Q4 FY11
1c	KW DVT, Environmental DVT, and Qualification	Technical		Q3 FY11
2	Affordable (FYDP and Beyond)			
2a	CARD Approved	Resource		Q4 FY10
2b	Independent Cost Estimate and Independent Government Estimates complete	Resource		Q4 FY10
3	Achievable Design			
3a	SM-3 BLK IB design validation	Test		Q2 FY11
3b	Developmental/Operational Tests (DT/OT) in progress and interim report supports an operationally effective and suitable assessment upon completion of OT&E	Test		Q4 FY14
3c	Removable Deckhouse design validation	Technical		Q3 FY13
4	Manufacturing Plans			
4a	Subsystem EMRL ¹ at 4 minimum (Manufacturing Readiness Level 9 ²)	Operational		Q3 FY14
4b	Validated initial production line	Operational		Q4 FY14
5	Sustainability Plans			
5a	Supportability Strategy approved by Navy	Operational		Q4 FY13
5b	All quality and reliability levels established and verified	Operational		Q4 FY14
6	Weapons System Explosives Safety Review Board			
6a	System obtains final WSESRB approval	Operational		Q1 FY14
7	Verified program execution and operational transition alignment with Navy			

~~FOUO~~

1. EMRL 4

Similar system, component or item previously produced or in production. Or, the system, component or item is in low rate initial production. Ready for full rate production. During low rate initial production all systems engineering/design requirements should be met and there should only be minimal system engineering/design changes.

2. MRL 9

Major system design features are stable and proven in test and evaluation. Materials are available to meet planned rate production schedules. Manufacturing processes and procedures are established and controlled to three-sigma or some other appropriate quality level to meet design key characteristic tolerances in a low rate production environment. Production risk monitoring ongoing. LRIP cost goals met, learning curve validated. Actual cost model developed for FRP environment, with impact of Continuous improvement.

Risk to Execution	
Low	
Medium	
High	



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Aegis Ashore Program

Earned Value Management Data (U)

Not Under Contract – No Earned Value Management Data

~~SECRET~~

3.3.3 Aegis 5.0 (AWS) (U)

~~SECRET~~

~~SECRET~~

JUN 30 2010

MEMORANDUM FOR THE PROGRAM EXECUTIVE FOR AEGIS BMD, MISSILE
DEFENSE AGENCY

SUBJECT: Development Decision Memorandum for Aegis BMD 5.0 Baseline Review (U)

(U) The attached schedule, technical, test, operational, resource, and contracts baselines and activities are approved for Aegis BMD 5.0.

(U) Changes to the Ballistic Missile Defense System (BMDS) baseline are managed through the Missile Defense Agency (MDA) Program Change Board (PCB) in accordance with MDA Directive 5000.04. PCB-approved changes that affect the Aegis BMD 5.0 acquisition, development and/or fielding will be implemented by the Aegis BMD Program Office and documented in the Single Acquisition Management Plan. Baseline variations will be reported to the MDA Director, Assistant Secretary of the Navy (ASN) (Research, Development and Acquisitions (RDA)) and in the annual BMDS Accountability Report.

(U) The following activities are directed to occur during the remainder of the Aegis BMD 5.0 Product Development Phase:

- | | |
|--------------------------------------------------------------|--------|
| • Common Processing System (CPS) Refresh at New Jersey Sites | 4QFY10 |
| • Multi-Mission Signal Processor (MMSP) Radar Exercise | 1QFY12 |
| • Aegis Light Off System Functional Test (ALO SFT) | 2QFY12 |
| • Aegis Light Off on DDG 53 (ALO) | 4QFY12 |
| • Advance Capability Build (ACB) 12 Demonstration (DEMO) | 1QFY13 |
| • Flight Test Mission (FTM)-20E1 Engagement | 4QFY13 |
| • ACB12 Certification | 1QFY14 |

~~Derived from: Multiple Sources~~

~~Declassify on: May 2034~~

~~SECRET~~

~~SECRET~~

2

(U) The criteria to exit the Product Development Phase (Attachment 7) are also approved. An Initial Production Decision is expected in 1QFY14 prior to an Under Secretary of Defense (USD) for Acquisitions, Technology and Logistics (AT&L) production decision to enter Production Phase.



SEAN J. STACKLEY
Assistant Secretary of the Navy
Research, Development & Acquisition



PATRICK J. O'REILLY
Lieutenant General, USA
Director

Attachments:

1. Aegis BMD 5.0 Schedule Baseline(U). This document is "~~FOUO~~"
2. Aegis BMD 5.0 Technical Baseline(U). This document is "~~SECRET~~"
3. Aegis BMD 5.0 Test Baseline(U). This document is "~~FOUO~~"
4. Aegis BMD 5.0 Operational Capacity Baseline (U). This document is "~~FOUO~~"
5. Aegis BMD 5.0 Resource Baseline(U). This document is "~~FOUO~~"
6. Aegis BMD 5.0 Contract Baseline(U). This document is "~~FOUO~~"
7. Aegis BMD 5.0 Exit Criteria(U). This document is "~~FOUO~~"
8. Aegis BMD 5.0 Earned Value. This document is "~~FOUO~~"

cc:

ASN RDA
MDA/DX
MDA/DE
MDA/DO
MDA/DA
MDA/DP
MDA/DT
MDA/DS
MDA/AB
IWS/1.0
OPNAV N86

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Schedule Baseline

~~FOUO~~

Critical Milestones highlighted in Yellow

Attachment 1

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Technical
Baseline

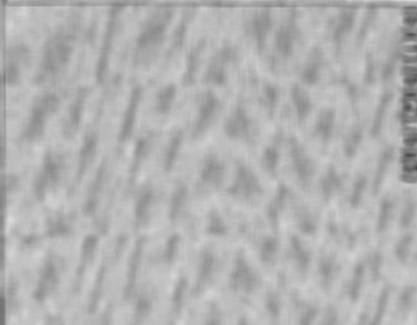
Aegis BMD 5.0 Program Technical Baseline (U)

Current and Future Capabilities

Prioritized Capabilities List (PCL) 2009	
Combatant Command Capability Needs	Enduring Capabilities
[Redacted Content]	

FOUO

Aegis BMD 5.0	
[Redacted Content]	

Aegis BMD 5.1	
	

FOUO

ID #	Knowledge Points Phase 2	Knowledge Points Phase 2	Date
	Description	Description	
1	[Redacted Content]	[Redacted Content]	

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Approved

(b)(7)



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Test
Baseline

Aegis BMD 5.0 Program

Test Baseline IAW Current BMDS Baseline (IMTP 10.2) (U)

~~FOUO~~

Aegis BMD 5.0		FY13				FY14				FY15			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
TEST EVENTS	System/Element Flight Tests	(b)(2),(b)(5)											
	System Level GT GTX-Focused GTI= HWIL GTD= Distributed TA/ PA = Digital Assessments												
	Chamber / Lab/ Simulation												
	Summary Information	<div>Primary CFC/FME Phase Test Data Collection</div> <div><u>Additional Test Data Collection Opportunities</u> AACTV-1 (4QFY13) AAFTM-1 (3QFY14)</div> <div><u>Acquisition Phase Test Configuration</u> AWS Computer Program BMD 5.0</div>											
<div><input type="checkbox"/> Near-Term PAA Phase 1 Right Test <input type="checkbox"/> Mid-Term PAA Phase 2 Right Test <input type="checkbox"/> Far-Term PAA Phase 3 Right Test <input type="checkbox"/> Operational Test - Right</div> <div><input type="checkbox"/> Near-Term PAA Phase 1 Ground Test <input type="checkbox"/> Mid-Term PAA Phase 2 Ground Test <input type="checkbox"/> Far-Term PAA Phase 3 Ground Test <input type="checkbox"/> Operational Test - Ground</div>													

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Approved:

(b)(6)



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Operational
Capacity
Baseline

Aegis BMD 5.0 Program Operational Capacity Baseline (U)

Aegis BMD 5.0 Fielding Plan	FY
(b)(1),(b)(2),(b)(5)	(b)(1),(b)(2),(b)(5)

~~FOUO~~

Aegis BMD 5.0 CAPABILITIES & LIMITATIONS
(b)(1),(b)(2),(b)(5)

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MDA Operational Capability Delivery	DATE
(b)(1),(b)(2),(b)(5)	1QFY14 1QFY14
Organization/Personnel • Navy Manning Plan (NMP)	Navy Responsibility
(b)(1),(b)(2),(b)(5)	2QFY12
Leadership and Education • Will follow officer/enlisted ship training pipeline	Navy Responsibility
(b)(1),(b)(2),(b)(5)	1QFY14
(b)(1),(b)(2),(b)(5)	4QFY13 1QFY15
(b)(1),(b)(2),(b)(5)	1QFY14
(b)(1),(b)(2),(b)(5)	4QFY15

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Approved:

(b)(6)

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Resource
Baseline

Aegis BMD 5.0 Program Resource Baseline Summary (U)

Program Acquisition Unit Costs (BY10\$M)			
Component	Qty	Current Est	Baseline
BMD 5.0 Shipsets	27	30	30
Average Procurement Unit Costs (BY10\$M)			
Component	Qty	Current Est	Baseline
BMD 5.0 Shipsets	27	7	7

Costs TY \$M	Sunk	2010	2011	2012	2013	2014	2015	FYDP Total	To Complete	Total
Software Development	130	103	134	94	53	15	1	401		531
Testing					3	8		11		11
Test Item Manufacturing		5	10	26	33	38	25	137	45	183
Integration		33	44	34	21	28	10	169	10	178
Development Total	130	140	188	154	110	89	36	717	55	902
Total Cost Estimate	130	140	188	154	110	89	36	717	55	902

FOUO

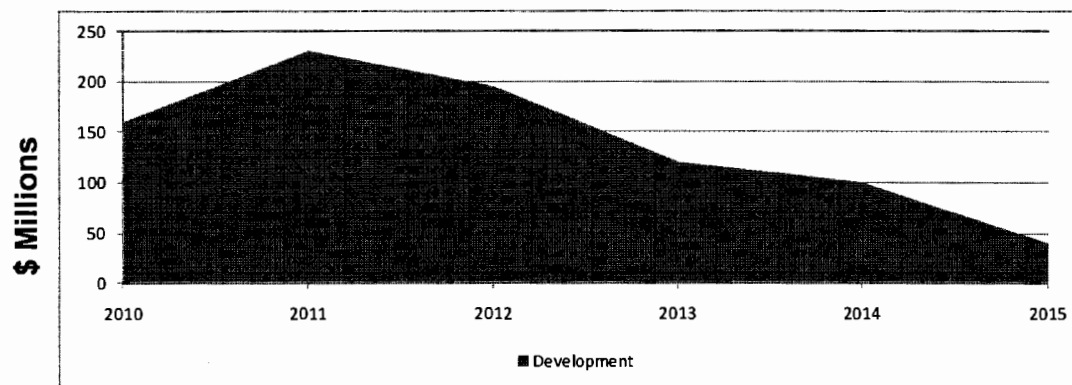
FOUO

** APUC calculation derived using the RDT&E funds applied to producing BMD 5.0

Cost Analysis Requirements Description				
CARD approval date: 30 October 2009				
Updated Annually				
Life Cycle Cost Estimate				
Date Approved: Estimated 6/30/2010				
Life Cycle Cost Estimate (BY10\$M)				
	Sunk	Current Estimate To Go	Total	Variance
Development	130	728	858	858
Software Development	130	389	519	519
Testing		10	10	10
Test Item Manufacturing		170	170	170
Integration		159	159	159
Total Life Cycle	130	728	858	858
Explanation of Variance				

FOUO

Time Phased Estimate Chart



FOUO



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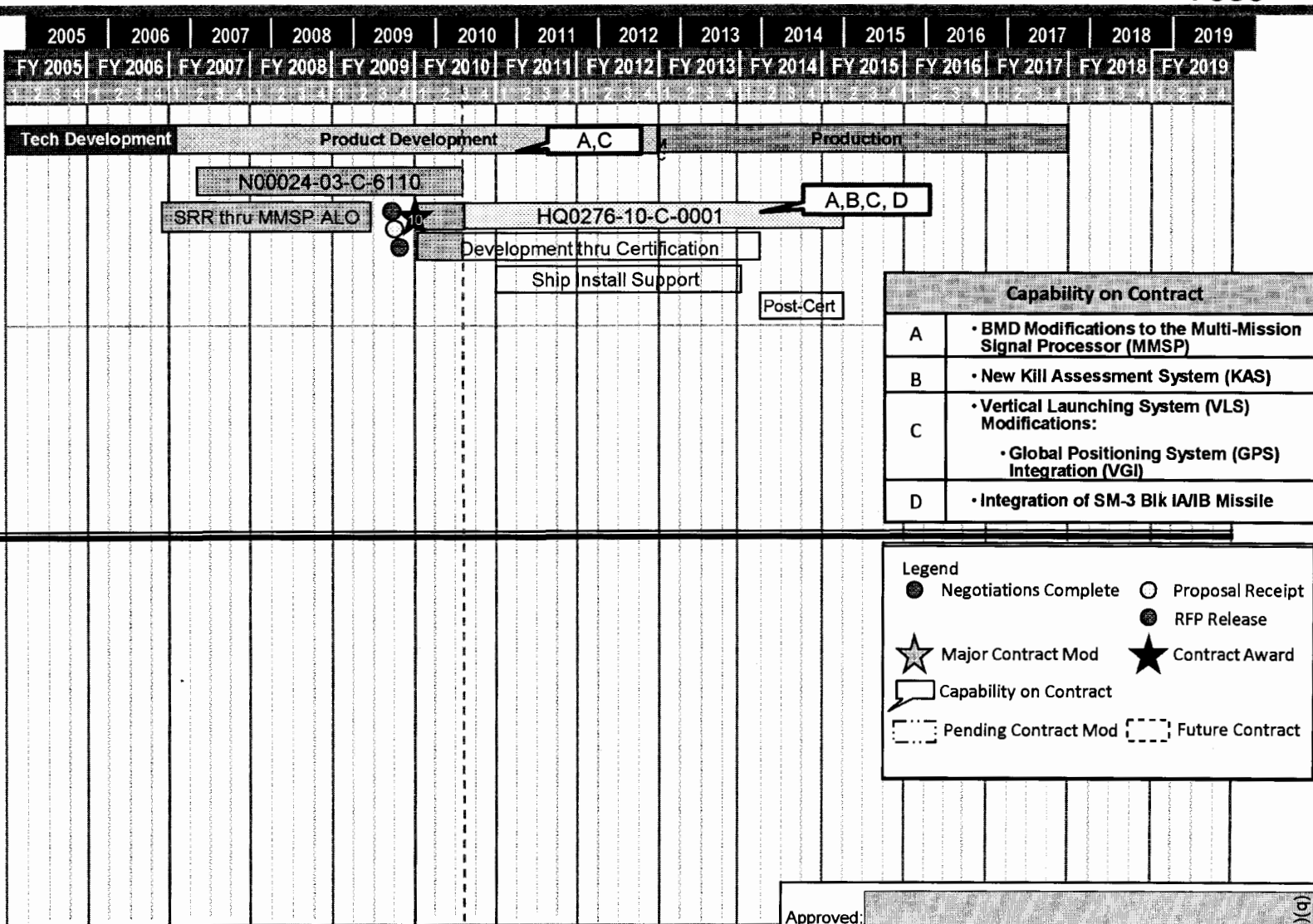
Contract
Baseline

Aegis BMD 5.0 Program Contract Baseline (U)

FOUO

Development

BMD 5.0
CPAF/IF



FOUO

Approved:

(9)(a)



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Aegis BMD 5.0 Program

Product Development Phase Exit Criteria (U)

~~FOUO~~

#	Exit Criteria	Baseline	Required for IOC
1	Verified Requirements		
1a	All system engineering/design requirements defined, traced and validated	Technical	
2	Affordable (FYDP and Beyond)		
2a	CARD Approved	Resource	
2b	Independent Cost Estimate and Independent Government Estimates complete	Resource	
3	Achievable Design		
3a	Integrate Aegis BMD 4.0.1 into Navy ACB12	Technical	
3b	Developmental/Operational Tests (DT/OT) will begin with FTM -20E1	Test	
4	Manufacturing Plans		
4a	Subsystem EMRL ¹ at 4 minimum (Manufacturing Readiness Level 9 ²)	Operational	
5	Sustainability Plans		
5a	Supportability Strategy will be provided by Navy	Operational	N/A
5b	All quality and reliability levels established and verified by Navy	Operational	N/A
6	Weapons System Explosives Safety Review Board		
6a	Hazard Assessment complete (will be green at Aegis BMD 4.0.1 WSESRB)	Technical	
6b	System obtains final WSESRB approval (Green at successful completion of ACB12 WSESRB)	Operational	
7	Program execution aligned with Navy		
8	Alignment with BMDS		

1. EMRL 4

Similar system, component or item previously produced or in production. Or, the system, component or item is in low rate initial production. Ready for full rate production. During low rate initial production all systems engineering/design requirements should be met and there should only be minimal system engineering/design changes.

2. MRL 9

Major system design features are stable and proven in test and evaluation. Materials are available to meet planned rate production schedules. Manufacturing processes and procedures are established and controlled to three-sigma or some other appropriate quality level to meet design key characteristic tolerances in a low rate production environment. Production risk monitoring ongoing. LRIP cost goals met, learning curve validated. Actual cost model developed for FRP environment, with impact of Continuous improvement.

Risk to Execution	
Low	
Medium	Y
High	

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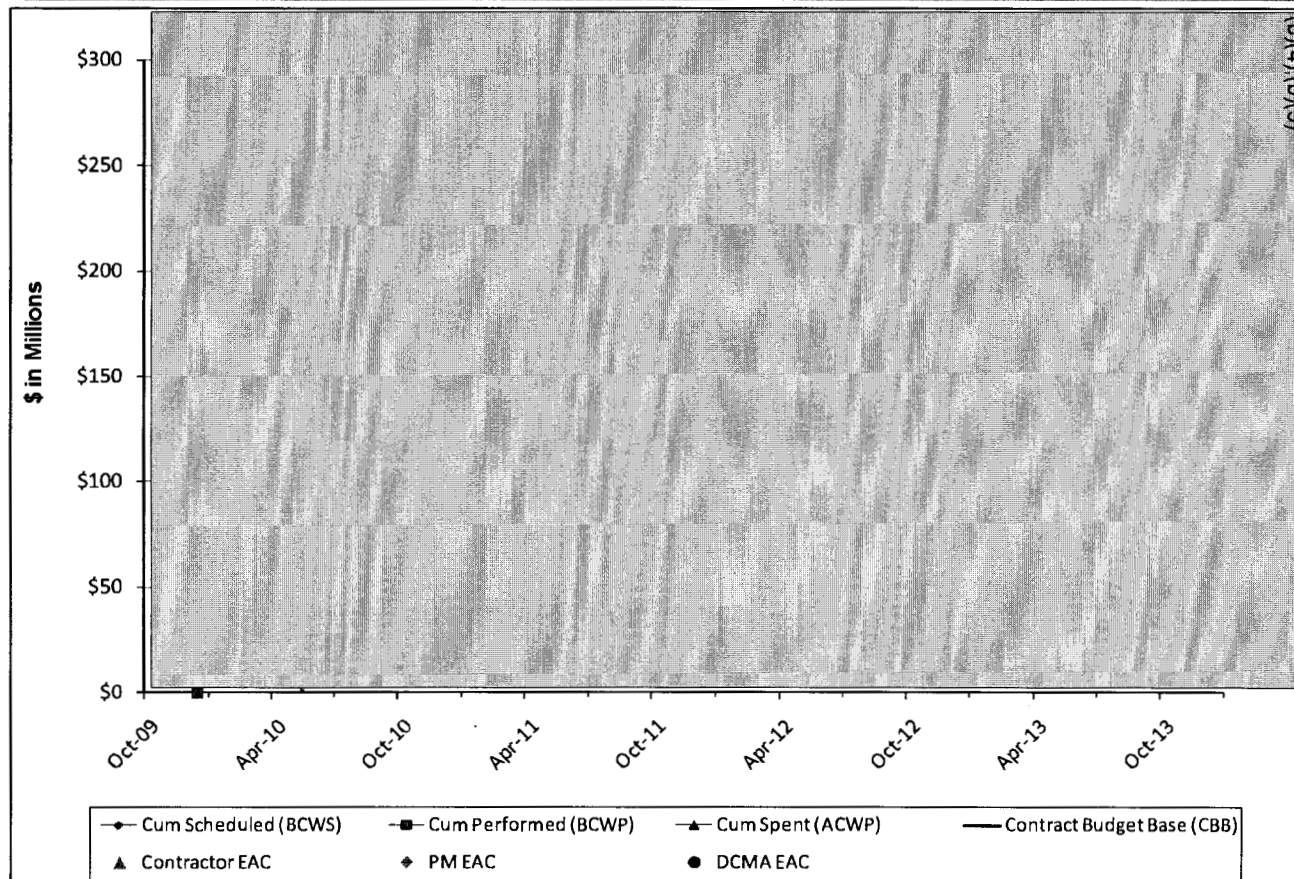


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Aegis BMD 5.0 Program

Earned Value Management Data (U)

FOUO



CPI (b)(4), (b)(5) SPI (b)(4), (b)(5)

Key Cost/Schedule Variance (CV/SV) Drivers:

Cost: The cum CV: (b)(4), (b)(5)

Schedule: The cum SV: (b)(4), (b)(5)

Projected Variance at Completion (VAC) DOV's VAC is (b)(4), (b)(5)

EAC = CBB at this time

Impacts (cost, schedule, technical, funding)

(b)(4), (b)(5)

Current Funding Impact: (b)(4), (b)(5)

Prime Contractor	Contract Type	CBB	Variances	Cumulative	Current Month	EAC	VAC
Lockheed Martin	CPAF	(b)(4), (b)(5)	SV	(b)(4), (b)(5)	PM	(b)(4), (b)(5)	(b)(4), (b)(5)
Period of Performance	Last IBR Date	% Complete	CV	Level of Effort (LOE) Percentage			
Oct 2009 - Dec 2013	01-Mar-10	(b)(4), (b)(5)		(b)(4), (b)(5)	DCMA	None	None

FOUO

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Approved: (b)(4), (b)(5)

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3.4 GMD (U)

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GM

DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
7100 DEFENSE PENTAGON
WASHINGTON, DC 20301-7100

MEMORANDUM FOR PROGRAM DIRECTOR, GROUND-BASED MIDCOURSE
DEFENSE, MISSILE DEFENSE AGENCY

SUBJECT: Developmental Decision Memorandum for Ground-Based Midcourse
Defense Developmental Baseline Review (U)

(U) The attached schedule, technical, test, operational capacity, resource, and contract baselines and activities are approved for the Ground-Based Midcourse Defense (GMD) Capability Delivery 04 (CD-04).

(U) Changes to the Ballistic Missile Defense System (BMDS) baseline are managed through the Missile Defense Agency (MDA) Program Change Board (PCB) in accordance with MDA Directive 5000.04. PCB-approved changes that affect the GMD fielding of CD-04 will be implemented by the GMD Joint Program Office and documented in the Single Acquisition Management Plan. Baseline variances will be reported to the Director, MDA, and included in the annual BMDS Accountability Report.

~~(FOUO)~~ The following activities are directed to occur during the remainder of the CD-04 Product Development Phase:

- | | |
|-----------------------------------------------|----------|
| • 30 GBIs emplaced | 4QFY2010 |
| • Fort Greely Power Plant completion | 2QFY2011 |
| • FTG-06a executed | 1QFY2011 |
| • GS 6B.2 FQT | 2QFY2011 |
| • GS 6B.1.5 Suite Fielding (CD-04X delivered) | 3QFY2011 |
| • Missile Field 2 construction complete | 3QFY2012 |
| • GBIs 29-44 delivered | 1QFY2013 |
| • GT-04 Campaign complete | 4QFY2013 |
| • GS 6B.2 Suite Fielding | 2QFY2014 |

(U) I expect delivery of CD-04 in the second quarter of FY14.

Patrick J. O'Reilly
PATRICK J. O'REILLY
Lieutenant General, USA
Director

~~SECRET~~

Attachments:

1. GMD Schedule Baseline (U). This document is "~~FOUO.~~"
2. GMD Technical Baseline (U). This document is "~~SECRET.~~"
3. GMD Test Baseline (U). This document is "FOUO."
4. GMD Operational Capacity Baseline (U). This document is "~~SECRET.~~"
5. GMD Resource Baseline (U). This document is "~~FOUO.~~"
6. GM Program Schedule, Performance & Actuals -0001 Contract (U). This document is "~~FOUO.~~"
7. GM Program Schedule, Performance & Actuals -0008 Contract (U). This document is "~~FOUO.~~"
8. GMD Contract Baseline (U). This document is "~~FOUO.~~"

cc:

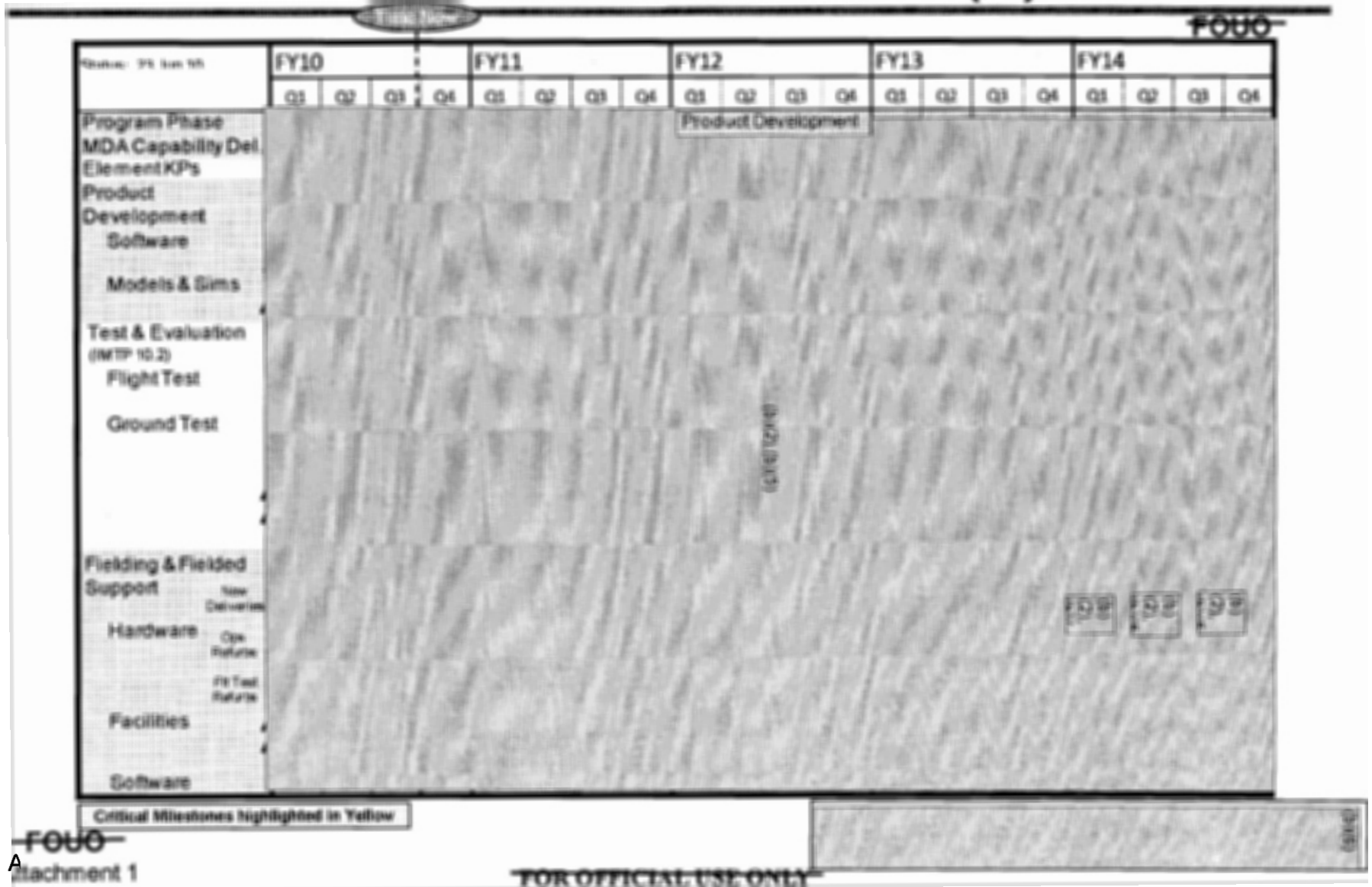
MDA/DX
MDA/DP
MDA/DE
MDA/DT
MDA/DO
MDA/DA
MDA/DS
MDA



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Schedule
Baseline

GMD Program CD-04 Schedule Baseline(U)





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Technical
Baseline

GMD Program CD-04 Technical Baseline (U)

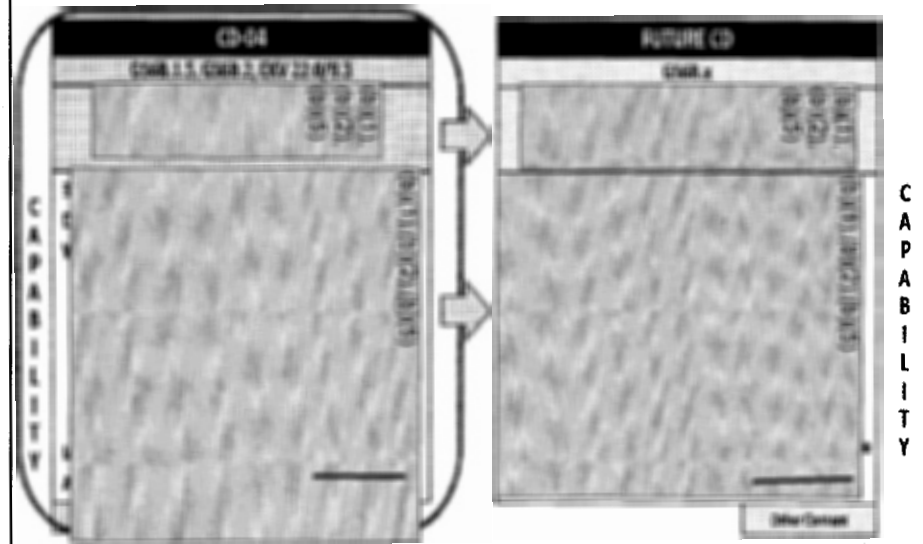
GM related PCL items that have improvements with CD-04

Combatant Command Capability Needs	PRIORITIZED CAPABILITIES LIST (PCL) 2009- Enduring Capabilities (EC)
(b)(1), (b)(2), (b)(3), (b)(4), (b)(5), (b)(6), (b)(7), (b)(8), (b)(9), (b)(10), (b)(11), (b)(12), (b)(13), (b)(14), (b)(15), (b)(16), (b)(17), (b)(18), (b)(19), (b)(20), (b)(21), (b)(22), (b)(23), (b)(24), (b)(25), (b)(26), (b)(27), (b)(28), (b)(29), (b)(30), (b)(31), (b)(32), (b)(33), (b)(34), (b)(35), (b)(36), (b)(37), (b)(38), (b)(39), (b)(40), (b)(41), (b)(42), (b)(43), (b)(44), (b)(45), (b)(46), (b)(47), (b)(48), (b)(49), (b)(50), (b)(51), (b)(52), (b)(53), (b)(54), (b)(55), (b)(56), (b)(57), (b)(58), (b)(59), (b)(60), (b)(61), (b)(62), (b)(63), (b)(64), (b)(65), (b)(66), (b)(67), (b)(68), (b)(69), (b)(70), (b)(71), (b)(72), (b)(73), (b)(74), (b)(75), (b)(76), (b)(77), (b)(78), (b)(79), (b)(80), (b)(81), (b)(82), (b)(83), (b)(84), (b)(85), (b)(86), (b)(87), (b)(88), (b)(89), (b)(90), (b)(91), (b)(92), (b)(93), (b)(94), (b)(95), (b)(96), (b)(97), (b)(98), (b)(99), (b)(100)	(b)(1), (b)(2), (b)(3), (b)(4), (b)(5), (b)(6), (b)(7), (b)(8), (b)(9), (b)(10), (b)(11), (b)(12), (b)(13), (b)(14), (b)(15), (b)(16), (b)(17), (b)(18), (b)(19), (b)(20), (b)(21), (b)(22), (b)(23), (b)(24), (b)(25), (b)(26), (b)(27), (b)(28), (b)(29), (b)(30), (b)(31), (b)(32), (b)(33), (b)(34), (b)(35), (b)(36), (b)(37), (b)(38), (b)(39), (b)(40), (b)(41), (b)(42), (b)(43), (b)(44), (b)(45), (b)(46), (b)(47), (b)(48), (b)(49), (b)(50), (b)(51), (b)(52), (b)(53), (b)(54), (b)(55), (b)(56), (b)(57), (b)(58), (b)(59), (b)(60), (b)(61), (b)(62), (b)(63), (b)(64), (b)(65), (b)(66), (b)(67), (b)(68), (b)(69), (b)(70), (b)(71), (b)(72), (b)(73), (b)(74), (b)(75), (b)(76), (b)(77), (b)(78), (b)(79), (b)(80), (b)(81), (b)(82), (b)(83), (b)(84), (b)(85), (b)(86), (b)(87), (b)(88), (b)(89), (b)(90), (b)(91), (b)(92), (b)(93), (b)(94), (b)(95), (b)(96), (b)(97), (b)(98), (b)(99), (b)(100)

(U) IAMD - Integrated Air and Missile Defense
Attachment 2

(U) IEMA - Threat Evaluation and Weapons
Assignment

Current and Future Capabilities



Knowledge Points (U)

FOUO

GMD KP #	DESCRIPTION	DEMONSTRATED BY	Complete
1	(b)(1), (b)(2), (b)(5)	(b)(1), (b)(2), (b)(5)	
2			
3			

Approved:

(b)(6)

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GMD Program

CD-04 (IMTP 10.2) Test Baseline (U)

Test
Baseline

GM Program Plan		FY10				FY11				FY12				FY13				
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
FOUO	TEST EVENTS																	(b)(2)(b)(5)
Summary Information		<u>Additional Test Data Collection Opportunities</u> None for CD -04 through FY13				<u>Acquisition Phase Test Configuration</u> GMD Fire Control - GS 8B1.5 GMD Fire Control - GS 8B.2 EKV 22.X (CE I) EKV 9.X (CE II)												
CECs: Critical Engagement Conditions EMEs: Empirical Measurement Events		<input type="checkbox"/> Near -Term PAA Phase 1 Flight Test	<input type="checkbox"/> Near -Term PAA Phase 1 Ground Test	<input type="checkbox"/> Mid -Term PAA Phase 2 Flight Test	<input type="checkbox"/> Mid -Term PAA Phase 2 Ground Test	<input type="checkbox"/> Far -Term PAA Phase 3 Flight Test	<input type="checkbox"/> Far -Term PAA Phase 3 Ground Test	<input type="checkbox"/> Operational Test - Flight	<input type="checkbox"/> Operational Test - Ground									
* GM Flight test pending PCB approval		FTG-13: Shadowed event is GM test in IMTP 10.2; not required for CD -04																

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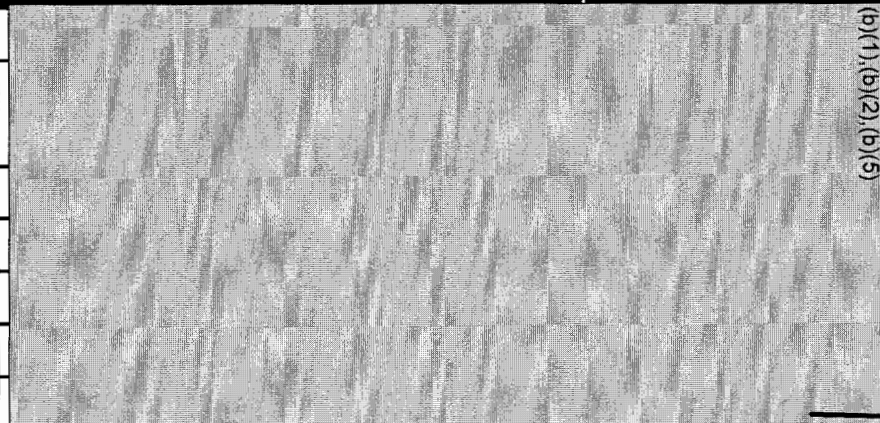




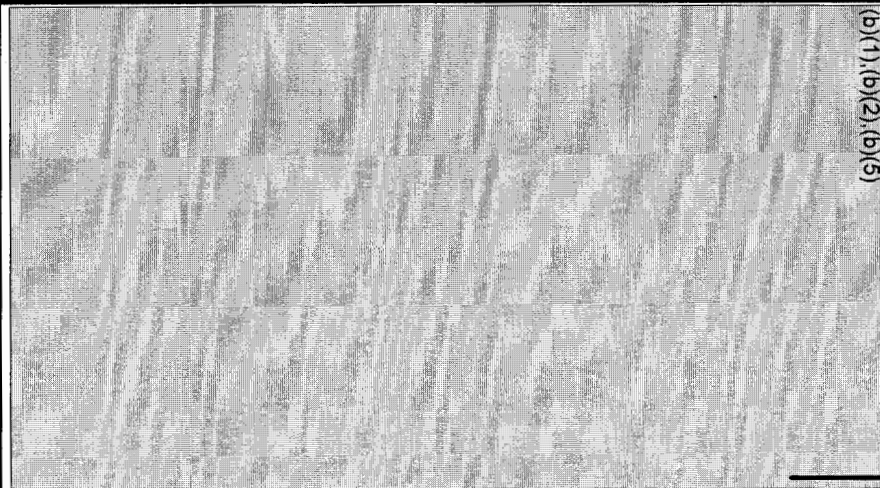

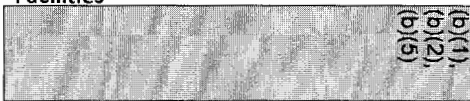






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Operational
Capacity
Baseline

GMD Program

CD-04 Operational Capacity Baseline (U)

GMD CONFIGURATION	CD-04 (2QFY14)	MDA Operational Capability	DATE		
	(b)(1),(b)(2),(b)(5)	Doctrine 	Sep 2004 Dec 2008 Jun 2008		
		Organization / Personnel 	Oct 2003 Jan 2004		
		Training 	2009 2007 2005		
		Materiel 	Sep 2010		
CD 04 CAPABILITIES & LIMITATIONS			(b)(1),(b)(2),(b)(5)	Leadership and Education 	2005 2005
Facilities 	Sep 2004 Sep 2004 Dec 2004				
Safety / Security / Interoperability 	Sep 2009 Oct 2008 Jun 2007				
	4QFY13				
				FOUO Jan 2010	

(U) EAS-Eareckson Air Station
(U) EKV-Exoatmospheric Kill Vehicle
(U) FGA-Fort Greely Alaska
Attachment 4

(U) MDIOC-Missile Defense Integration and Operations Center
(U) TOM-Target Object Map (U)
(U) VAFB-Vandenberg Air Force Base (U)

Approved:

(b)(6)

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GM BMDs Accountability Report Resource Baseline Summary (U)

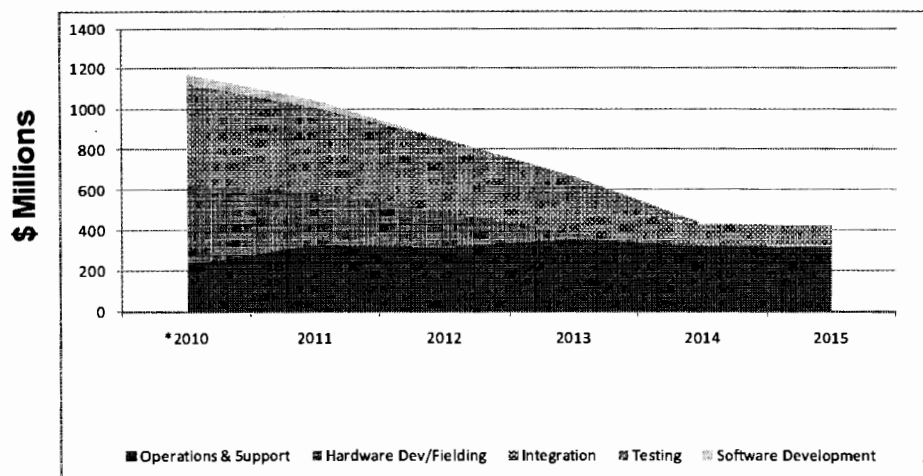
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GMD Program Unit Cost Baseline			
Program Acquisition Unit Costs (BY10\$M)			
Component	Qty	Current Est	Baseline
Interceptor	56	419	419
Average Procurement Unit Costs (BY10\$M)			
Component	Qty	Current Est	Baseline
Interceptor	44	71	71

GMD Time Phased Estimate (As of 15 June 2010)										
	FY02-FY09									
Costs TY \$M	Sunk	2010	2011	2012	2013	2014	2015	FYDP Total	To Complete	Total
Software Development	2,067	46	36					83		2,150
Testing	2,398	211	185	219	157			772		3,170
Integration	5,199	289	237	136	125	104	98	990	649	6,838
Hardware Dev/Fielding	6,219	398	256	175	26	5		860		7,079
Operations & Support	2,441	230	331	318	357	322	326	1,883	10,810	15,134
Development Total	18,324	1,173	1,045	848	665	432	424	4,588	11,459	34,371
Total Program Estimate	18,324	1,173	1,045	848	665	432	424	4,588	11,459	34,371

GMD Cost Estimate Description Documentation					
Cost Analysis Requirements Description					
CARD approval date: 16 Nov 2009					
Updated Annually					
Life Cycle Cost Estimate (To Sustain CD-04 Through FY32)					
Date Approved: 15 June 2010					
Life Cycle Cost Estimate (BY10\$M)					
	Current Estimate		Baseline	Variance	
	Sunk	To Go	Total		
Development	17,346	3,151	20,497	20,497	-
Software Development	2,263	81	2,344	2,344	-
Testing	2,632	748	3,380	3,380	-
Integration	5,714	1,481	7,195	7,195	-
Hardware Dev/Fielding	6,737	841	7,578	7,578	-
Production and Deployment	-	-	-	-	-
Military Construction	-	-	-	-	-
Operations and Support	2,595	10,276	12,871		
Total Life Cycle	19,941	13,427	33,368		
Explanation of Variance					

Time Phased Chart



Approved:

(g)(q)

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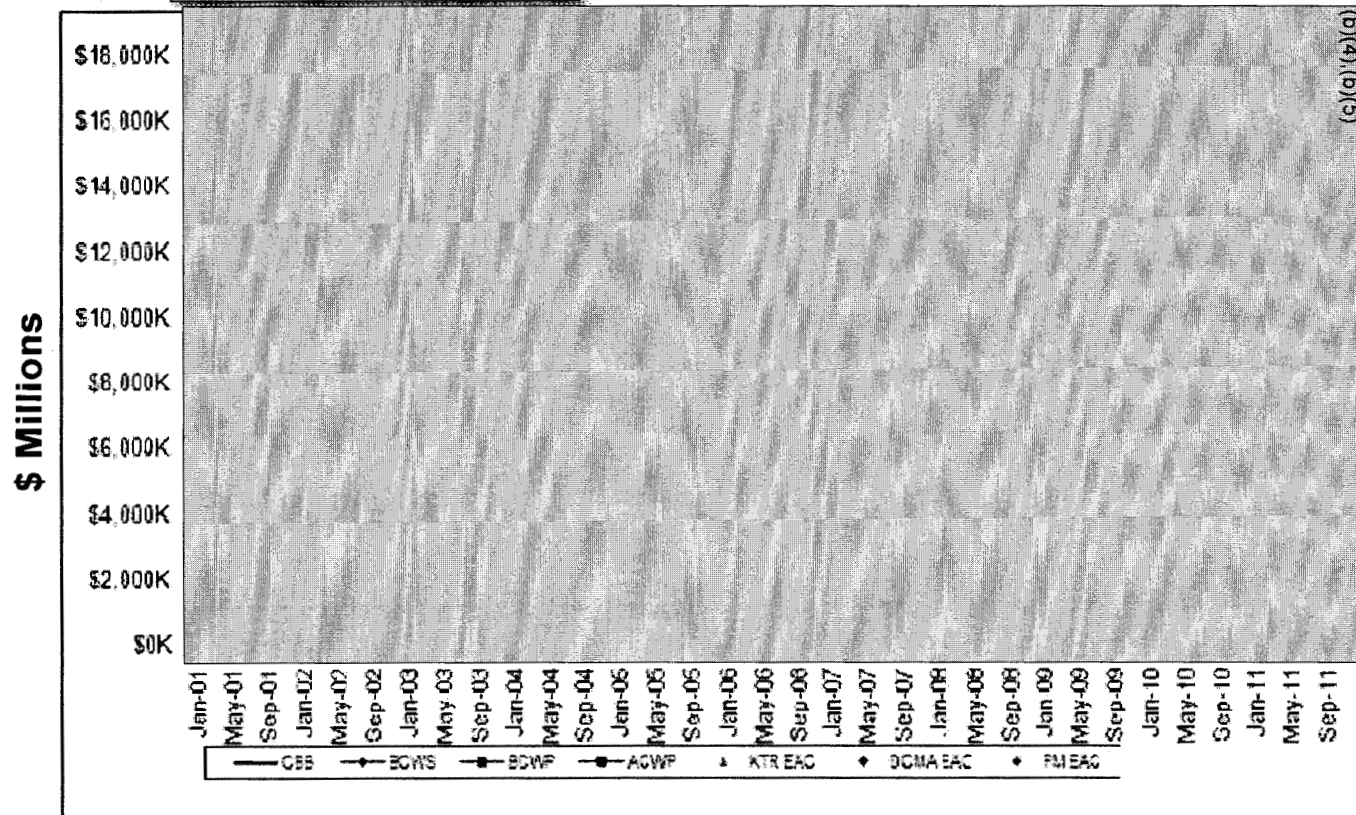


~~FOR OFFICIAL USE ONLY~~

GMD

0001 Prime Contract Earned Value Management Data (U)

MDA EVM Data - Apr 10 CPR Data



~~FOUO~~

Key Cost/Schedule Variance (CV/SV) Drivers:

Cost: The cum CV: (b)(4), (b)(5)

Schedule: The cum SV: (b)(4), (b)(5)

Projected Variance at Completion (VAC)

PM's VAC is (b)(4), (b)(5)

Impacts (cost, schedule, technical, funding): (b)(4), (b)(5)

Current Impact: (b)(4), (b)(5)

Prime Contractor	Contract Type	CBB	Variances	Cumulative	Current Month	EAC	EAC	VAC
Boeing	CPAF	(b)(4), (b)(5)	SV	(b)(4), (b)(5)	(b)(4), (b)(5)	PM		(b)(4), (b)(5)
Period of Performance	Last IBR Date	% Complete	CV			KTR		
Jan 2001 - Dec 2011*	Feb 2010 - TDX	(b)(4), (b)(5)	Level of Effort (LOE) Percentage	(b)(4), (b)(5)		DCMA		

~~FOUO~~

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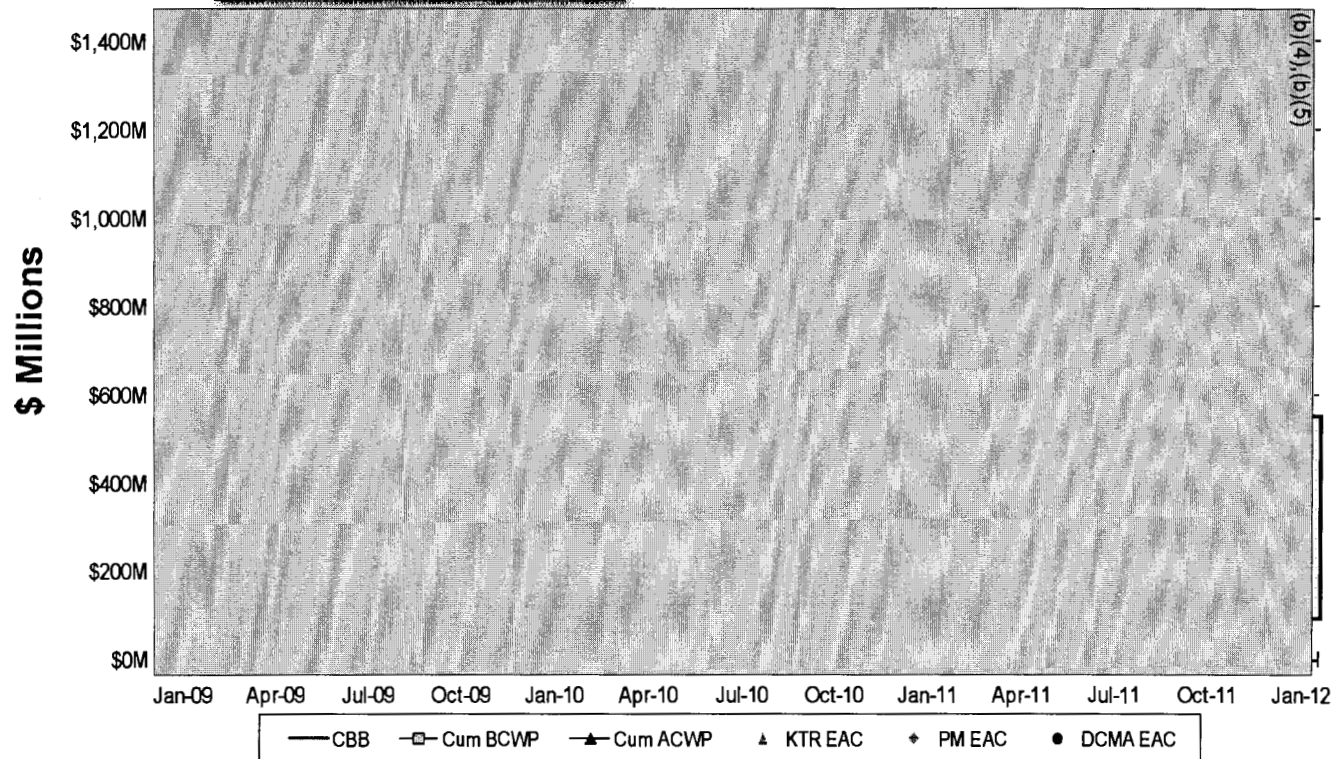


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GMD

0008 Core Completion Contract Earned Value Management Data (U)

MDA EVM Data - Apr 10 CPR Data



~~FOUO~~

Key Cost/Schedule Variance (CV/SV) Drivers:

Cost: The cum CV: (b)(4), (b)(5)

Schedule: The cum SV: (b)(4), (b)(5)

Projected Variance at Completion (VAC)

PM's VAC is (b)(4), (b)(5)

Impacts (cost, schedule, technical, funding)

Current Impact: (b)(4), (b)(5)

Prime Contractor	Contract Type	CBB	Variances	Cumulative	Current Month	EAC	EAC	VAC
Boeing	CPFF	(b)(4), (b)(5)	SV		(b)(4), (b)(5)	PM		(b)(4), (b)(5)
Period of Performance	Last IBR Date	% Complete	CV			KTR		
Jan 2009 - Dec 2011	NA	(b)(4), (b)(5)				DCMA		

~~FOUO~~

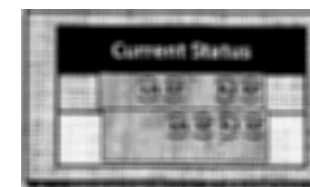
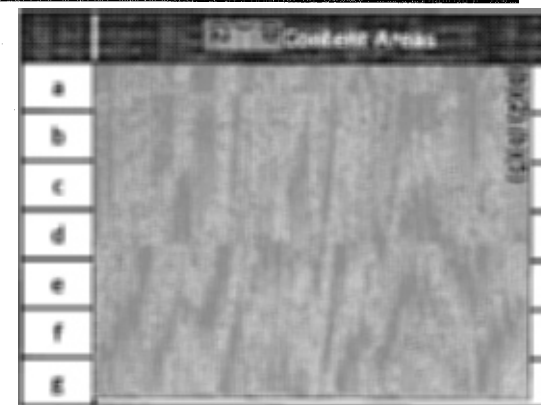
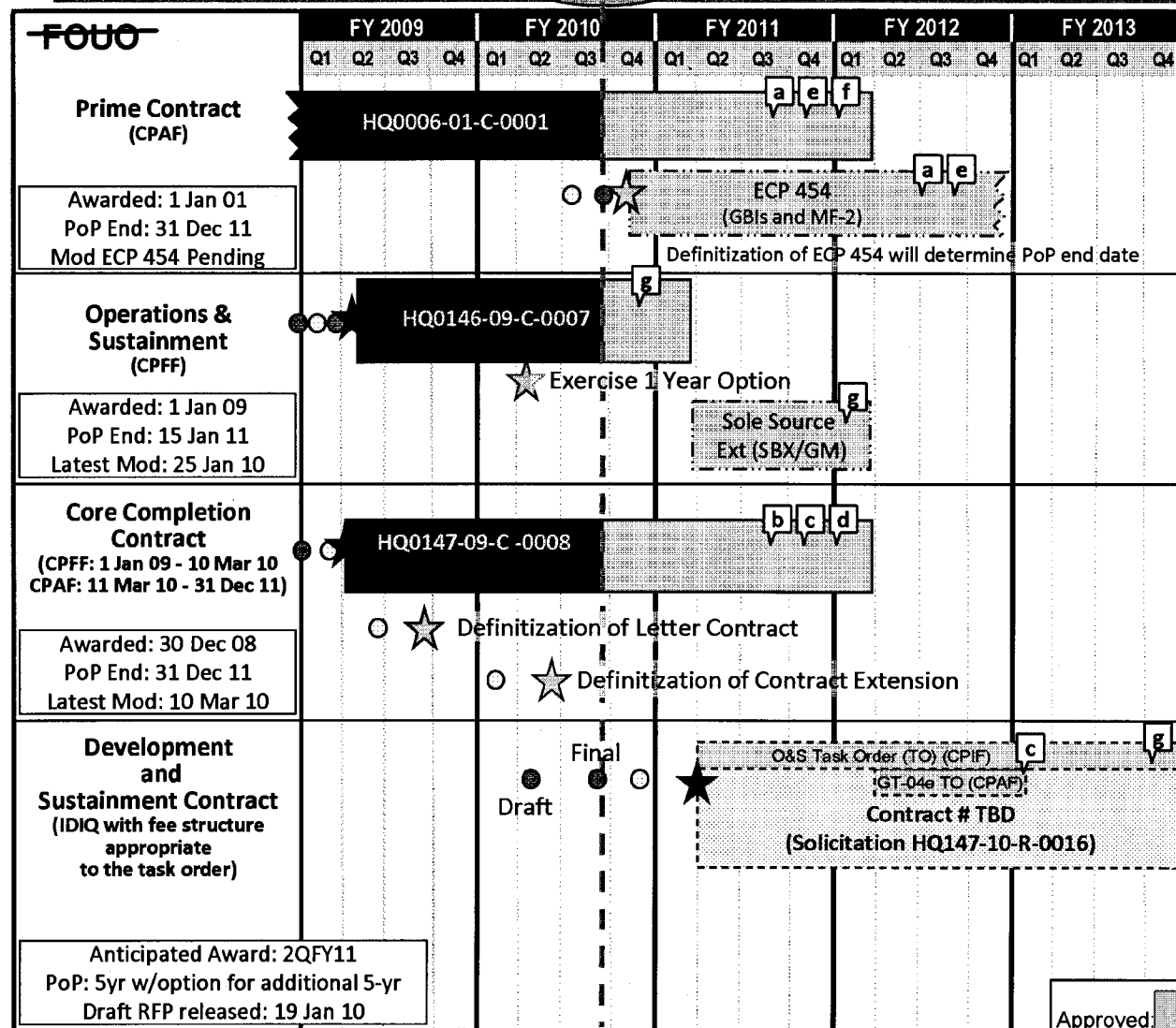
(b)(6)



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GMD Program Contract Baseline (U)

**Contract
Baseline**



Legend

● Negotiations Complete	○ Proposal Receipt
● RFP Release	□ Content Area
★ Major Contract Mod	★ Contract Award
□ Pending Contract Mod	□ Future Contract

FOUO

Approved: _____

(9)(9)

Attachment 8

~~FOR OFFICIAL USE ONLY~~

~~SECRET~~

3.5 SBX (U)

~~SECRET~~

~~SECRET~~

JUN 30 2010

MEMORANDUM FOR PROGRAM DIRECTOR, SENSORS, MISSILE DEFENSE
AGENCY (U)

SUBJECT: Development Decision Memorandum for Sensors Sea Based X-Band
(SBX) Radar Program Baseline Review (U)

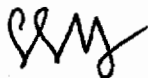
(U) The attached schedule, technical, test, operational capacity, resource, and contract baselines and exit criteria are approved for SBX radar.

(U) Changes to the Ballistic Missile Defense System (BMDS) baseline are managed through the Missile Defense Agency (MDA) Program Change Board (PCB) in accordance with MDA Directive 5000.04. PCB-approved changes that affect the SBX will be implemented by the Sensors Directorate, documented in the Single Acquisition Management Plan, and baseline variances will be reported to the Director, MDA and Assistant Secretary of the Navy (ASN(RDA)). Variances from the BMDS baseline will be reported in the annual BMDS Accountability Report.

(U) The following activities are directed to occur during the remainder of the SBX Product Development Phase:

- (U) Navy Inspection and Survey (INSURV) 4QFY10
- (U) Fully Mission Capability (FMC) 1QFY11
- (U) American Bureau of Shipping/U.S. Coast Guard 1QFY11
(ABS/USCG) 5 Year Certification
- (U) FTG-06a 1QFY11
- (U) Begin a phased transition of SBX Operations & Sustainment 2QFY11
(O&S) to the U.S. Navy

(U) We approve the exit criteria presented in the review, listed in Attachment 8, and the program is expected to deliver Capability Delivery-03 in the first quarter FY11 and continue X-Band Radar software research and development within MDA/Sensor Directorate through FY15.



SEAN J. STACKLEY
Research, Development, and Acquisition
Assistant Secretary of the Navy



PATRICK J. O'REILLY
Lieutenant General, USA
Director

Derived from: Multiple Sources

Declassify on: May 2034

~~SECRET~~

~~SECRET~~

2

Attachments:

1. SBX Program (CD-03, CD-04) Schedule Baseline (U). This document is ~~"FOUO."~~
2. SBX Program (CD-03, CD-04) Technical Baseline (U). This document is ~~"SECRET."~~
3. SBX Program Build (CD-03, CD-04) Test Baseline (U). This document is ~~"FOUO."~~
4. SBX Program (CD-03, CD-04) Operational Capacity Baseline (U). This document is ~~"SECRET."~~
5. SBX Program (CD-03, CD-04) DBR Resource Baseline (U). This document is ~~"FOUO."~~
6. SBX (CD-03, CD-04) Contract Baseline (U). This document is ~~"FOUO."~~
7. SBX Program Exit Criteria (From Product Development Phase) (U). This document is ~~"FOUO."~~

cc:

MDA/DX
MDA/DE
MDA/DA
MDA/DP
MDA/DO
MDA/DT
MDA/DS
MDA/BC
MDA/TH
OPNAV N86

~~SECRET~~

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Schedule



SBX Program (CD-03, CD-04) Schedule (U)

Schedule
Baseline

Continues to CD-04 in
2QFY14

FOUO- Status: 23 June 2010		FY09				FY10				FY11				FY12				FY13			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Program Phase		Production Development Phase																			
Decision Points																					
MDA Capability Del.																					
MDA/Navy BoO																					
MDEB																					
BMDS Knowledge Points																					
Capability XDR Build 1.6																					
Development XDR Build 2																					
XDR Build 3																					
X-band Radar/SW																					
Model & Simulations																					
Ground Test																					
Flight Test/TOOs																					
OTA/WF																					
Transition and Transfer Documentation																					
INSURV																					
IBRT Recommendations																					
Siting Study																					
Shipyard (SY) (AUS/USCG Certifications)																					
Fielding & Fielding Support																					
Operations & Sustainment																					

Blue = XPR and Events * Not in IMTP 10.2

Critical Milestones Highlighted in Yellow

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Att:

achment 1



~~SECRET~~ SBX Program (CD-03, CD-04)Technical Baseline (U)

Technical
Baseline

Air & Missile Defense Prioritized Capabilities List 2009	
Combatant Command Needs	Enduring Capabilities
(b)(1), (b)(2), (b)(5)	(b)(1), (b)(2), (b)(5)
(b)(1), (b)(2), (b)(5)	
(b)(1), (b)(2), (b)(5)	
(b)(1), (b)(2), (b)(5)	

Current (CD-03) and Future (CD-04) Capabilities (U)

CD-03	
(b)(1), (b)(2), (b)(5)	(b)(1), (b)(2), (b)(5)
(b)(1), (b)(2), (b)(5)	(b)(1), (b)(2), (b)(5)

CD-04	
(b)(1), (b)(2), (b)(5)	(b)(1), (b)(2), (b)(5)
(b)(1), (b)(2), (b)(5)	(b)(1), (b)(2), (b)(5)

~~SECRET~~

CD-03 and CD-04 Knowledge Points (U)

SBX KP #	Description	Demonstrated by	Comp
Designated Fully Mission Capable by Warfighter			
1			✓
2			
3			
4			

~~SECRET~~

Approved



~~FOR OFFICIAL USE ONLY~~

SBX Program Build (CD-03, CD-04)

Test Baseline (U)

IAW Current 10.2 BMDS Test Baseline

Test
Baseline

SBX Program Plan		Time Now																
		FY09				FY10				FY11				FY12				
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
TEST EVENTS	System/Element Flight Tests																	(b)(2),(b)(5)
	System Level GT																	
	GTX-Focused GTI= HWIL																	
	GTD= Distributed TA/ PA = Digital Assessments Chamber / Lab/ Simulation																	
Summary Information	Tests for SBX Product Development Phase, SBX/XBR SW Build 2.2.1.1 (CD-03). (Note: ** Tests occurred before CEC/EME)																	(b)(2),(b)(5)
	Primary CEC/EME Phase Test Data Collection Opportunities																	
		Additional Test Data Collection Opportunities JFTM 1 & 2** GT-201 GT-198** GT-202 GT-195 FTX-17 FTX-07 FTT-15 BVT-01 JSC (G-22-S) FTT-13 FTM-15 Acquisition Phase Test Configuration Software versions:	(b)(2),(b)(5)															

CECs: Critical Engagement Conditions
EMEs: Empirical Measurement Events
KP: Knowledge Point

△ Near Term PAA Phase 1 Flight Test
○ Mid-Term Flight Test
◇ Far-Term Flight Test

□ Near Term PAA Phase 1 Ground Test
□ Mid-Term Ground Test
□ Far-Term Ground Test

△○ ◇ Operational Test - Flight
□ Operational Test - Ground



~~SECRET~~

SBX Program (CD-03, CD-04) Operational Capacity Baseline (U)

Operational
Capacity
Baseline

FOUO SBX Configuration	Status
(b)(1), (b)(2), (b)(5)	(b)(1), (b)(2), (b)(5)

SECRET Current Capabilities & Limitation
(b)(1), (b)(2), (b)(5)

~~SECRET~~

FOUO MDA Operational Capability Delivery	DATE
Doctrine (b)(1), (b)(2), (b)(5)	2 Nov 09 21 Apr 09
Organization/Personnel (b)(1), (b)(2), (b)(5)	Complete ECD 1 Jan 2011
Training (b)(1), (b)(2), (b)(5)	Complete
Materiel (b)(1), (b)(2), (b)(5)	ECD Oct 2011 ECD 30 June 2011
Leadership and Education (b)(1), (b)(2), (b)(5)	Jan 2010
Facilities (b)(1), (b)(2), (b)(5)	May 2010 (MDEB)
Security/Interoperability (b)(1), (b)(2), (b)(5)	Feb 10 Complete
Supportability (b)(1), (b)(2), (b)(5)	Complete
BMD System Level Testing/Performance (b)(1), (b)(2), (b)(5)	1QFY06 1QFY09 3QFY09 4QFY09

FOUO

Attachment 4

~~SECRET~~

Approved: (b)(6)



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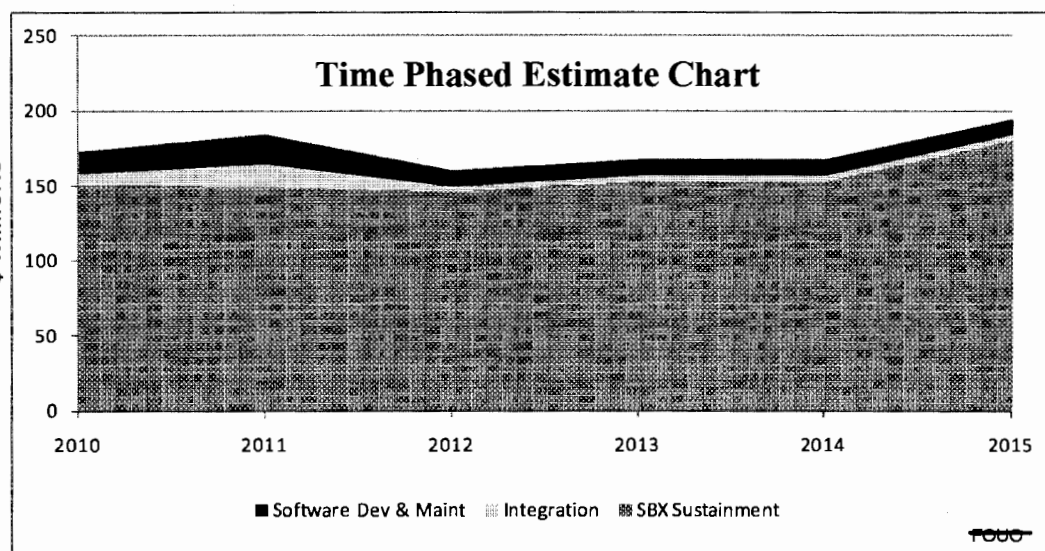
SBX Program (CD-03, CD-04) BMDS Accountability Report Resource Baseline Summary (U)

**Resource
Baseline**

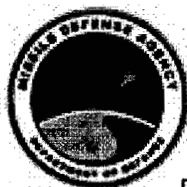
SBX Unit Cost Baseline			
Program Acquisition Unit Costs (BY10\$M)			
Component	Qty	Current Est	Baseline
SBX	1	1468	1468
Average Procurement Unit Costs (BY10\$M)			
Component	Qty	Current Est	Baseline
SBX	1	479	479

Time Phased Estimate Table (as of 15 June 2010)										
Costs TY\$M	Sunk	2010	2011	2012	2013	2014	2015	FYDP	To Complete	Total
Hardware Development	463	0	0	0	0	0	0	0	0	463
Testing	128	0	0	0	0	0	0	0	0	128
Integration	177	6	14	3	3	3	3	32	0	208
System Fabrication	479	0	0	0	0	0	0	0	0	479
Software Dev & Maint	126	15	20	11	11	11	11	79	0	205
SBX Sustainment	286	151	150	146	153	153	181	934	1901	3121
Total Cost Estimate	1660	172	184	160	167	167	194	1044	1901	4605

SBX Cost Estimate Description Documentation					
Joint Cost Analysis Requirements Description					
CARD approval date: MDA approved November 2009					
Updated Annually					
Joint Life Cycle Cost Estimate					
Date Approved: 4/01/2010					
Life Cycle Cost Estimate (BY10\$M)					
	Current Estimate			Baseline	Variance
	Sunk	To Go	Total		
Development	1,373	98	1,471	1,471	-
Hardware Development	463		463	463	-
System Fabrication	479		479	479	-
Software Dev & Maint	126	78	204	204	-
Testing	128		128	128	-
Integration	177	20	196	196	-
Operations and Support	286	2,264	2,550		
Total Life Cycle	1,660	2,362	4,021		
Explanation of Variance					

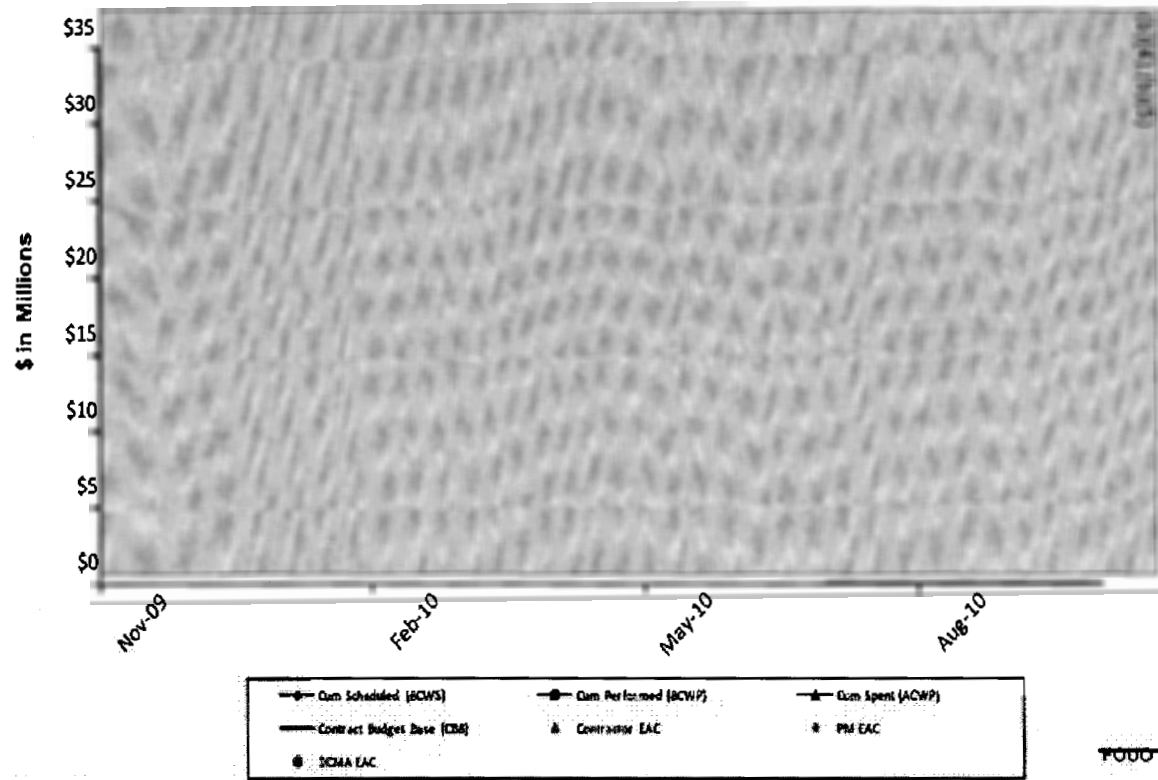


• APUC calculation is derived using the RDT&E funds applied to produce the SBX



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CCLS Task Order 8 XBR
Earned Value Management Data

MDA EVM Data - May 10 CPR Data



Key Cost/Schedule Variance (CV/SV) Drivers

Cost: The Cum CV is

(b)(4),
(b)(5)

Schedule: The cumulative schedule variance is

Projected Variance at Completion (VAC)

PM VAC is

(b)(4),
(b)(5)

KTR VAC is

Impacts (Cost, Schedule, Technical Funding):

(b)(4), (b)(5)

Prime Contractor	Contract Type	CBB	Variances	Cumulative	Current Month		EAC	VAC
Raytheon	CPAF	(b)(4), (b)(5)	SV	(b)(4), (b)(5)	(b)(4), (b)(5)	PM	(b)(4), (b)(5)	(b)(4), (b)(5)
Period of Performance	Last IBR	% Complete	CV			KTR		
Nov09 to Sep 10		(b)(4), (b)(5)	Level of Effort (LOE) Percentage	(b)(4), (b)(5)		DCMA	NA	NA

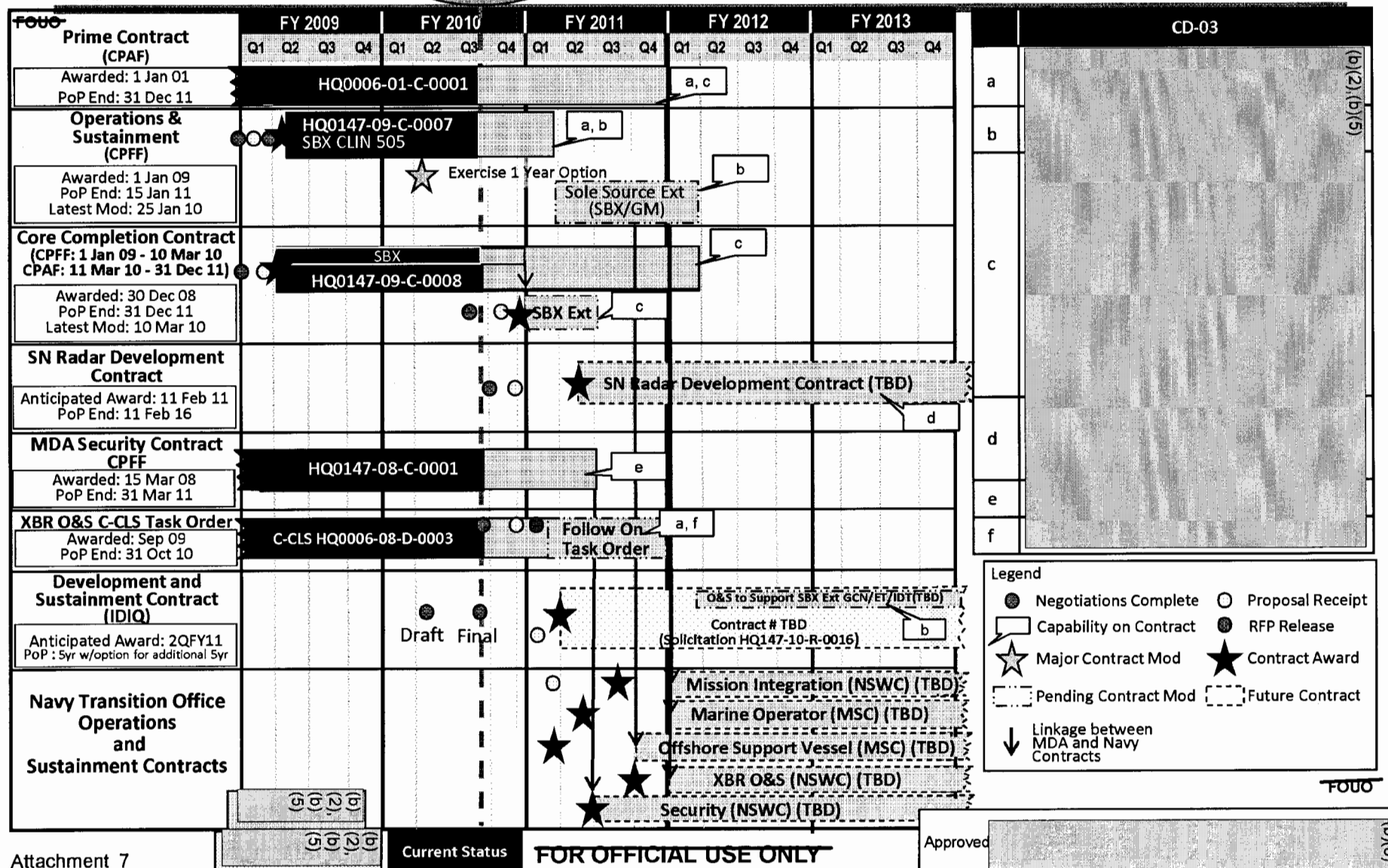


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SBX Program (CD-03, CD-04)

DBR Contract Baseline (U)

Contract
Baseline





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SBX Program Exit Criteria (From Product Development Phase) (U)

FOUO	Exit Criteria	Baseline	Status
1	Verified Requirements		
1a	Acceptance testing using Verification Cross Reference Matrix completed	Technical	
1b	Fully Mission Capable Declared. Results of IMTP tests assessed for operational effectiveness, suitability, and military utility of SBX	Technical	
2	Affordable (FYDP and Beyond)		
2a	Joint Cost Estimate completed	Resource	
2b	Joint Cost Analysis Requirements Document completed	Resource	
2c	Budget assigned	Resource	
3	Achievable Design		
3a	Final Design Review completed 24 Jun 03	Technical	
3b	Technical Performance Measurements verified	Technical	
3c	SBX Capabilities and Limitations incorporated into the BMDS Handbook, 31 Jan 10	Technical	
3d	Completed PA-09, GTI-03, GTD-03, GTX-03c/e and FTG-05 IMTP test objectives, schedule, and data collection requirements	Test	
3e	Capability Delivery 03 completed	Technical	
4	Manufacturing Plans		
4a	Single system developed, manufactured, and tested to support Ballistic Missile Defense System Operational and Test requirements	Operational	
5	Sustainability Plans		
5a	SBX Support Basing analysis completed	Schedule	
5b	Sustainability plans in-place; crews trained and ready	Operational	
6	Contracts & Acquisition		
6a	Approved Contract Strategy	Contract	

(U) Note: Interdependency linked to Navy/MDA MOA Milestones

FOUO

Risk to Execution
Low
Medium
High



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3.6.1 ICBM (U)

~~SECRET~~

~~SECRET~~



DA

DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
7100 DEFENSE PENTAGON
WASHINGTON, DC 20301-7100

MEMORANDUM FOR PROGRAM DIRECTOR, TARGETS AND
COUNTERMEASURES, MISSILE DEFENSE AGENCY


SUBJECT: Developmental Decision Memorandum for Targets and Countermeasures
Intercontinental Ballistic Missile (ICBM) Developmental Baseline Review
(U)

(U) The attached schedule, technical, test, resource, and contract baselines and activities are approved for the Targets and Countermeasures (TC) ICBM Program.

(U) Changes to the Ballistic Missile Defense System (BMDS) baseline are managed through the Missile Defense Agency (MDA) Program Change Board (PCB) in accordance with MDA Directive 5000.04. PCB-approved changes that affect the TC acquisition will be implemented by the TC Program Office and documented in the Single Acquisition Management Plan. Baseline variances will be reported to the Director, MDA, and included in the annual BMDS Accountability Report.

~~(FOUO)~~ The following activities are directed to occur during the remainder of the TC ICBM Product Development Phase:

- | | |
|----------------------------------|----------|
| • ICBM T1/T2 Contract Award | 4QFY2011 |
| • ICBM T1/T2 PDR | 2QFY2012 |
| • ICBM T1/T2 CDR | 4QFY2012 |
| • Deliver ICBM T1/T2 Ship-set #1 | 3QFY2014 |


PATRICK J. O'REILLY
Lieutenant General, USA
Director

~~Derived from: Multiple Sources~~
~~Declassify on: May 2034~~

~~SECRET~~

~~SECRET~~

2

Attachments:

1. TC Schedule Baseline (U). This document is "~~FOUO.~~"
2. TC Technical Baseline (U). This document is "~~SECRET.~~"
3. TC Test Baseline (U). This document is "~~FOUO.~~"
4. TC Resource Baseline (U). This document is "~~FOUO.~~"
5. TC Contract Baseline (U). This document is "~~FOUO.~~"

cc:

MDA/DX
MDA/DP
MDA/DE
MDA/DT
MDA/DO
MDA/DA
MDA/DS

~~SECRET~~



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Schedule
Baseline

ICBM Program Schedule Baseline (U)

	FY10				FY11				FY12				FY13				FY14				FY15				FY16			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Program Phase																												
Decision Points																												
Capability Del.																												
BMDS Knowledge Points																												
Element KPs																												
Model & Simulations																												
Pre and Post Flight Test																												
Model Updates																												
Capability Development																												
ICBM T1/T2																												
ICBM T3																												

Blue = KP #1 & events (U)

Green = KP #2 & events (U)

Brown = KP #3 & events (U)

Critical Milestones highlighted in Yellow (U)

Models & Sims

Purple = new development (U)

Black = re-use (U)



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Technical
Baseline

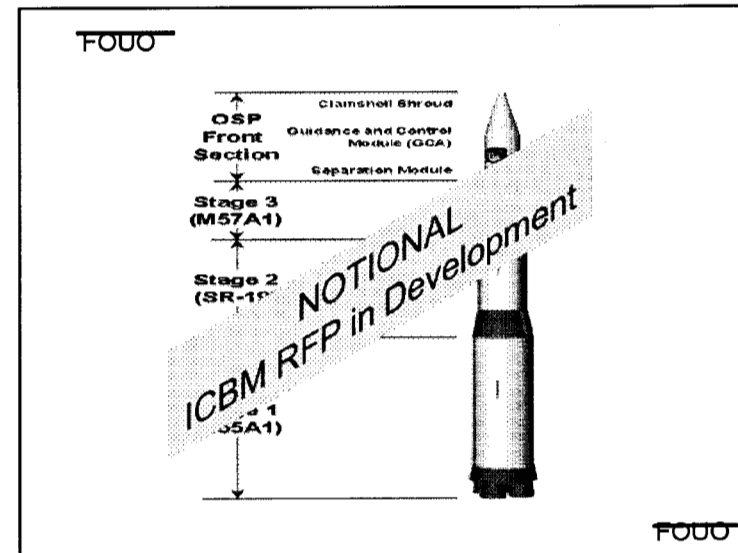
ICBM Program Technical Baseline (U)

ICBM Target to TCC&R Comparison

~~SECRET~~

ICBM Class	ICBM #	Target	TCC&R
ICBM #1			
ICBM #2			
ICBM #3			

Current Capabilities



~~SECRET~~

Knowledge Points

FOUO

ICBM Class KP #	Description	Demonstrated by	Complete
ICBM #1			
ICBM #2			
ICBM #3			

FOUO

~~SECRET~~

Approved: (b)(6)



~~FOR OFFICIAL USE ONLY~~

ICBM Program Test Baseline (U)

Test
Baseline

IAW IMTP 10.2 BMDS Test Baseline 20100614 1400 (U)

FOUO System	FY10				FY11				FY12				FY13				FY14				FY15				FY16			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
CNO	<div>Time Now ></div>																											
CD / AA																												
AEOS 3.5.1 (NA)																												
AEOS 4.0.1 (TR)																												
AEOS 5.0																												
AEOS 4.0.1 ER (BA)																												
THAAD																												
PATRIOT																												
Sensors																												
International																												
ICBM T1/T2 Deliveries																												
ICBM T1/T2 Inventory																												
ICBM T3 Deliveries																												
ICBM T3 Inventory																												
Legend	<div><div><div>○</div>Mid-Term PAA Ph 2 FT</div><div><div>◇</div>Far-Term PAA Ph 3 FT</div><div><div>○</div>Q1-Flight</div><div><div>◆</div>From Inventory</div><div>*Associated Objects</div></div>																											
Approved:														<div><div>6/21/16</div><div>12/16/16</div></div>														



~~FOR OFFICIAL USE ONLY~~

**Resource
Baseline**

ICBM Target Program BMDs Accountability Report Resource Baseline Summary (U)

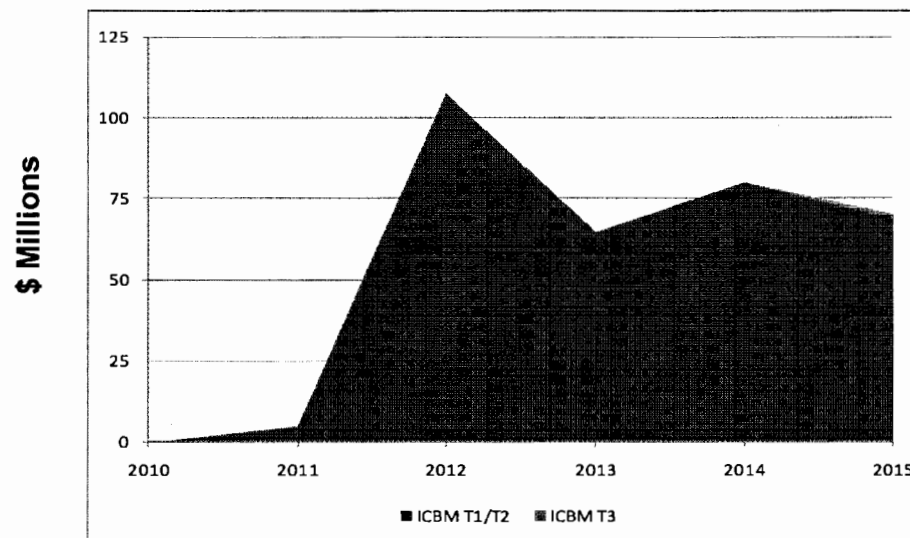
~~FOUO~~

ICBM			
Non-Recurring BY10\$M			
Component		Current Est	Baseline
ICBM T1/T2		205	205
ICBM T3		0	0
Average Unit Cost BY10\$M			
Component	Qty	Current Est	Baseline
ICBM T1/T2	2	43	43
ICBM T1/T3		-	-

•Non-Recurring costs include Hardware Development & General Support.
•Average Unit Cost is calculated for missions on manifest FY10-15.

MDA ICBM Time Phased Estimate (as of 06-15-10)										
Costs TY \$M	Sunk	2010	2011	2012	2013	2014	2015	FYDP Total	To Complete	Total
ICBM T1/T2			5	108	65	80	69	326	278	605
ICBM T3							2	2	155	157
Development Total			5	108	65	80	70	328	433	762
Total Cost Estimate			5	108	65	80	70	328	433	762

Time Phased Estimate Chart



ICBM Cost Estimate Description Documentation				
Cost Analysis Requirements Description				
CARD approval date: 06/01/2010				
Updated Annually				
Program Cost Estimate (FY10 - FY15)				
Date Approved: 06/03/2010				
Life Cycle Cost Estimate (BY10\$M)				
	Current Estimate		Baseline	Variance
	To Go	Total		
Development	308	308	308	
ICBM T1/T2	307	307	307	
ICBM T3	1	1	1	
Total Life Cycle	308	308	308	
Explanation of Variance				

Does not include Launch execution, Range Support & Logistics

~~FOUO~~

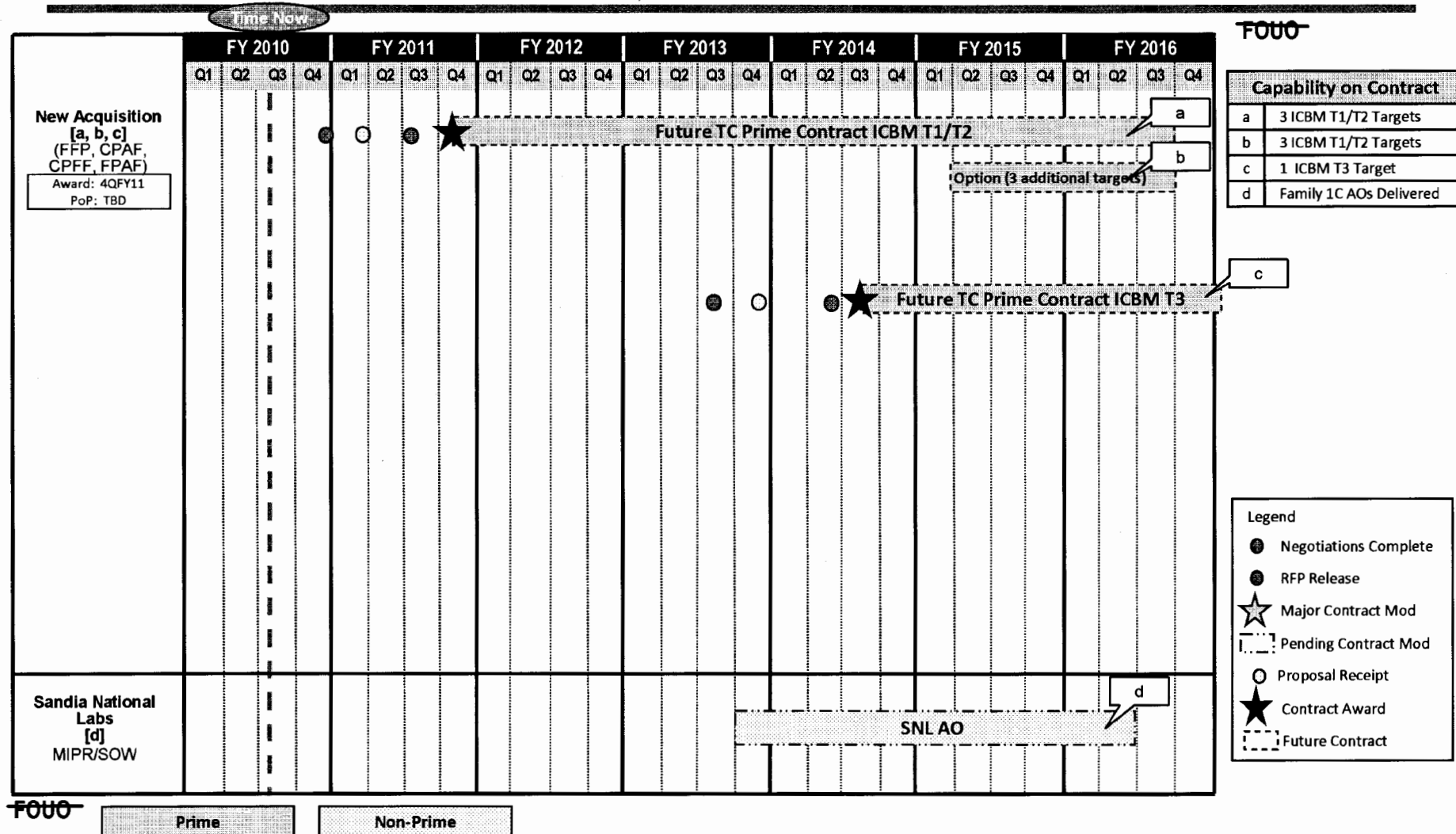
Approved: _____ (b)(2), (b)(5)



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Contract
Baseline

ICBM Program Contract Baseline (U)



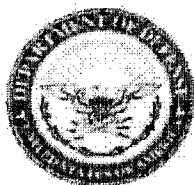
FOUO

~~SECRET~~

3.6.2 IRBM (U)

~~SECRET~~

~~SECRET~~



DA

DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
7100 DEFENSE PENTAGON
WASHINGTON, DC 20301-7100

MEMORANDUM FOR PROGRAM DIRECTOR, TARGETS AND
COUNTERMEASURES, MISSILE DEFENSE AGENCY


SUBJECT: Developmental Decision Memorandum for Targets and Countermeasures
Intermediate Range Ballistic Missile (IRBM) Developmental Baseline
Review (U)

(U) The attached schedule, technical, test, resource, and contract baselines and activities are approved for the Targets and Countermeasures (TC) IRBM Program.

(U) Changes to the Ballistic Missile Defense System (BMDS) baseline are managed through the Missile Defense Agency (MDA) Program Change Board (PCB) in accordance with MDA Directive 5000.04. PCB-approved changes that affect the TC acquisition will be implemented by the TC Program Office and documented in the Single Acquisition Management Plan. Baseline variances will be reported to the Director, MDA, and included in the annual BMDS Accountability Report.

~~(FOUO)~~ The following activities are directed to occur during the remainder of the TC IRBM Product Development Phase:

- IRBM T1/T2 Contract Award 2QFY2011
- IRBM T1/T2 Qualification Testing Complete 3QFY2013


PATRICK J. O'REILLY
Lieutenant General, USA
Director

Derived from: Multiple Sources
Declassify on: May 2034

~~SECRET~~

Attachments:

1. TC Schedule Baseline (U). This document is "~~FOUO~~."
2. TC Technical Baseline (U). This document is "~~SECRET~~."
3. TC Test Baseline (U). This document is "~~FOUO~~."
4. TC Resource Baseline (U). This document is "~~FOUO~~."
5. TC LM Prime Earned Value Management Chart (U). This document is "~~FOUO~~."
6. TC Contract Baseline (U). This document is "~~FOUO~~."

cc:

MDA/DX

MDA/DP

MDA/DE

MDA/DT

MDA/DO

MDA/DA

MDA/DS

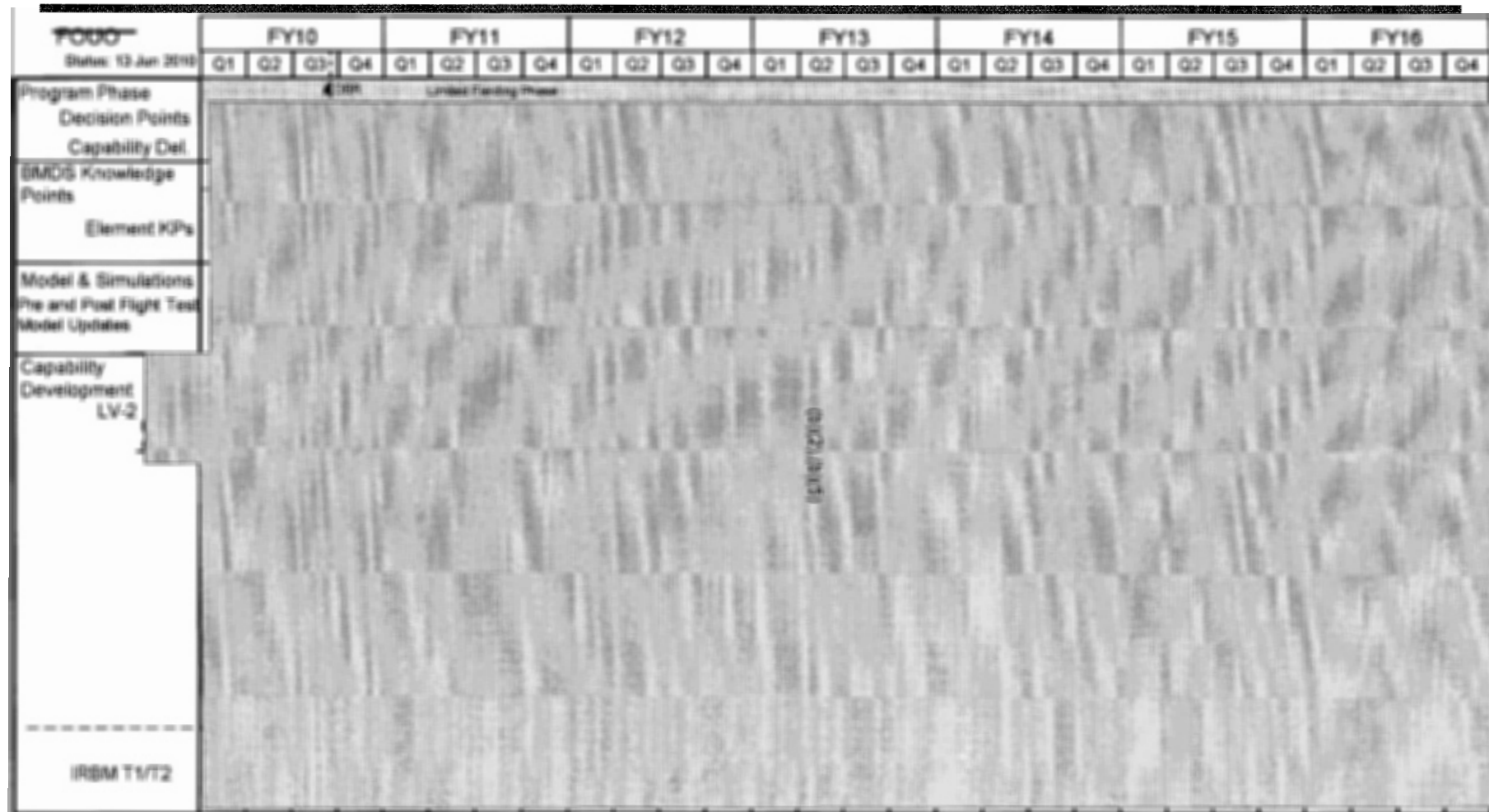
MDA/BC



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Schedule
Baseline

IRBM Program Schedule Baseline (U)



Blue = KP #1 (LV-2) & events (U)
Green = KP #2 (LV-2) & events (U)
Brown = KP #3 (LV-2) & events (U)
Purple = KP #1 (IRBM T1) & events (U)
Orange = KP #2 (IRBM T1) & events (U)

Models & Sims
Purple = new development (U)
Black = re-use (U)

Attachment 1 Critical Milestones highlighted in Yellow (U)

FOR OFFICIAL USE ONLY

FOUO

(S)(U)

(b)(5)



~~FOR OFFICIAL USE ONLY~~

IRBM Program Test Baseline (U)

Test
Baseline

IAV IMTP 10.2 BMDs Test Baseline

FOUO System	FY10				FY11				FY12				FY13				FY14				FY15				FY16			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
CNO																												
CD/AA																												
AEGIS 3.0.1 (SA)																												
AEGIS 4.0.1 (TB)																												
AEGIS 5.0																												
AEGIS 4.0.1 ER (TP)																												
THAAD																												
PACRPT																												
Sensors																												
Interdiction																												
Ship Set Module Deliveries																												
LV-2 Deliveries																												
LV-2 Inventory																												
POBN T1/T2 Deliveries																												
POBN T1/T2 Inventory																												
Legend	Near-Term PAA Ph 1 FT Mid-Term PAA Ph 2 FT Far-Term PAA Ph 3 FT OS-Flight Knowledge Point Ship Set From Inventory *Associated Objects FOUO																											



~~FOR OFFICIAL USE ONLY~~

Resource
Baseline

IRBM Target Program BMDS Accountability Report Resource Baseline Summary (U)

~~FOUO~~

IRBM			
Non-Recurring BY10\$M			
Component		Current Est	Baseline
LV-2		141	141
IRBM		323	323
Average Unit Cost BY10\$M			
Component	Qty	Current Est	Baseline
LV-2	6	62	62
IRBM	6	40	40

MDA IRBM Time Phased Estimate (85-06-15-10)										
Costs TY \$M	Sunk	2010	2011	2012	2013	2014	2015	FYDP Total	To Complete	Total
LV-2	927	117	67	37	21	40		281		1,208
IRBM		20	68	168	141	86	211	694	663	1,356
Development Total	927	136	134	205	162	126	211	974	663	2,564
Total Cost Estimate	927	136	134	205	162	126	211	974	663	2,564

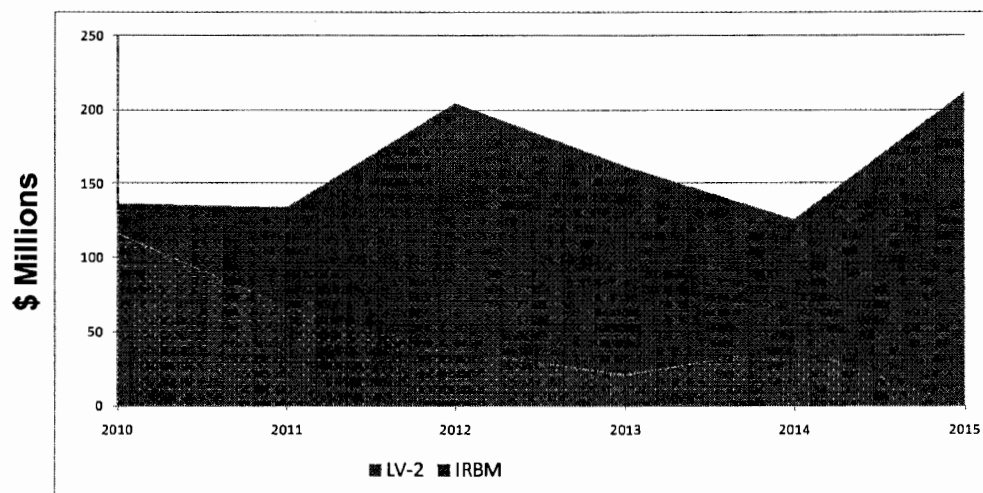
- Non-Recurring costs include Hardware Development & General Support.
- Average Unit Cost is calculated for missions on manifest FY10-15.

IRBM Cost Estimate Description Documentation				
Cost Analysis Requirements Description				
CARD approval date: 02/01/2010				
Updated Annually				
Program Cost Estimate (FY10 - FY15)				
Date Approved: 06/03/2010				
Life Cycle Cost Estimate (BY10\$M)				
	Current Estimate		Baseline	Variance
	To Go	Total		
Development	926	926	926	
LV-2	273	273	273	
IRBM	653	653	653	
Total Life Cycle	926	926	926	
Explanation of Variance				

- Does not include Launch execution, Range Support & Logistics.

~~FOUO~~

Time Phased Estimate Chart





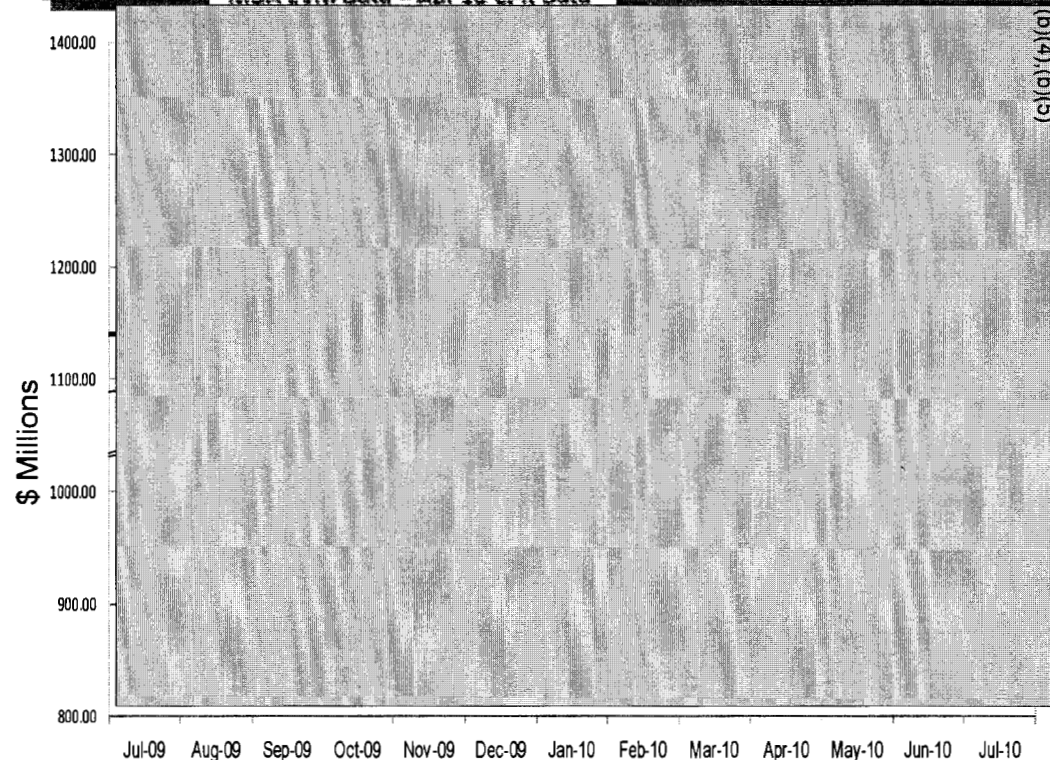
FOR OFFICIAL USE ONLY

TC LM Prime Contract Schedule (U)

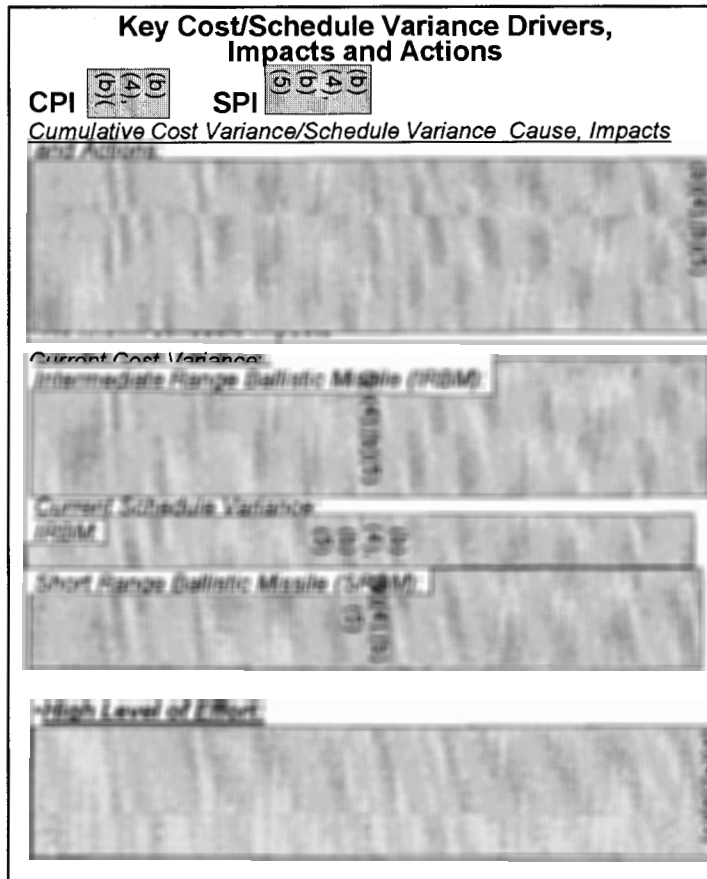
Earned Value Management Data

FOUO

MDA EVM Data - Apr 10 CPR Data



◆ CUM Scheduled (BCWS)	■ CUM Performed (BCWP)	▲ CUM Spent (ACWP)
— Contract Budget Base (CBB)	▲ Contractor EAC	* PMEAC
● DCMA EAC	- - CBB Forecast	



Prime Contractor	Contract Type	CBB	Variances	Cumulative	Current Month		EAC	VAC
Lockheed Martin	CPAF	(b)(4), (b)(5)	SV	(b)(4), (b)(5)	(b)(4), (b)(5)	MDA	(b)(4), (b)(5)	(b)(4), (b)(5)
Period of Performance	Last IBR Date	% Complete	CV	(b)(4), (b)(5)	(b)(4), (b)(5)	KTR	(b)(4), (b)(5)	(b)(4), (b)(5)
Dec 2003 - Dec 2013	3/12/2010	(b)(4), (b)(5)	Level of Effort (LOE) Percentage	(b)(4), (b)(5)	(b)(4), (b)(5)	DCMA	(b)(4), (b)(5)	(b)(4), (b)(5)

FOUO

(b)(4), (b)(5)

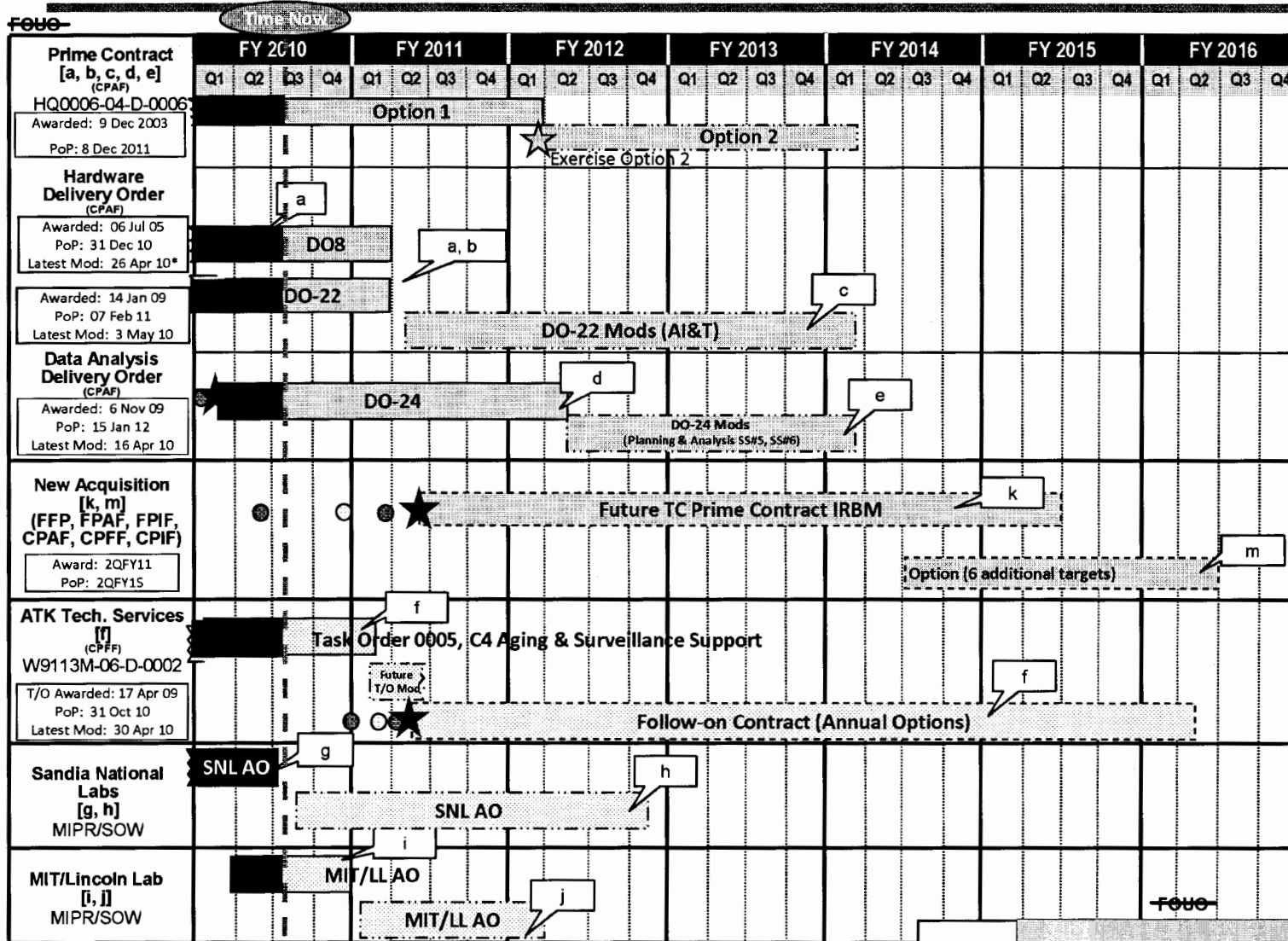


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IRBM Program Contract Baseline (U)

Contract
Baseline

FOUO



Capability on Contract	
a	6 LV-2 Ship Sets
b	2 LV-2 Ship Set Integration
c	LV-2 SS Integration Options
d	2 Data Analysis Efforts • Trajectories
e	LV-2 Data Analysis Options
f	Annual Aging & Surveillance Report
g	Family 1C AO Long Lead H/W
h	Family 1C & 1F AOs Deliv.
i	1 Family 1G Prototype Developed
j	Family 1G AO Delivered
k	8 IRBM T1 Ship Sets
m	6 IRBM T1 Options

*DO8 Mod for de-obligation of funds

Legend

- Negotiations Complete
- RFP Release
- ★ Major Contract Mod
- Pending Contract Mod
- Proposal Receipt
- ★ Contract Award
- Future Contract

Current Status

Attachment 6

Prime

Non-Prime

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Approved:

(b)(6)

~~SECRET~~

3.6.3 MRBM (U)

~~SECRET~~

~~SECRET~~



DA

DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
7100 DEFENSE PENTAGON
WASHINGTON, DC 20301-7100

MEMORANDUM FOR PROGRAM DIRECTOR, TARGETS AND
COUNTERMEASURES, MISSILE DEFENSE AGENCY


SUBJECT: Developmental Decision Memorandum for Targets and Countermeasures
Medium Range Ballistic Missile (MRBM) Developmental Baseline Review
(U)

(U) The attached schedule, technical, test, resource, and contract baselines and activities are approved for the Targets and Countermeasures (TC) MRBM Program.

(U) Changes to the Ballistic Missile Defense System (BMDS) baseline are managed through the Missile Defense Agency (MDA) Program Change Board (PCB) in accordance with MDA Directive 5000.04. PCB-approved changes that affect the TC acquisition will be implemented by the TC Program Office and documented in the Single Acquisition Management Plan. Baseline variances will be reported to the Director, MDA, and included in the annual BMDS Accountability Report.

~~(FOUO)~~ The following activities are directed to occur during the remainder of the TC MRBM Product Development Phase:

- | | |
|------------------------------------|----------|
| • Future MRBM T1 Contract Award | 1QFY2012 |
| • MRBM T3 Contract Award | 1QFY2012 |
| • E-LRALT Ship Set #1 to Inventory | 2QFY2012 |
| • eMRBM Ship Set #1 to Inventory | 3QFY2012 |
| • MRBM T1 Ship Set #1 to Inventory | 2QFY2014 |
| • MRBM T3 Ship Set #1 to Inventory | 3QFY2014 |


PATRICK J. O'REILLY
Lieutenant General, USA
Director

~~Derived from: Multiple Sources~~
~~Declassify on: May 2034~~

~~SECRET~~

Attachments:

1. TC Schedule Baseline (U). This document is "~~FOUO~~."
2. TC Technical Baseline (U). This document is "~~SECRET~~."
3. TC Test Baseline (U). This document is "~~FOUO~~."
4. TC Resource Baseline (U). This document is "~~FOUO~~."
5. TC Earned Value Management Charts (U). This document is "~~FOUO~~."
6. TC Contract Baseline (U). This document is "~~FOUO~~."

cc:

MDA/DX
MDA/DP
MDA/DE
MDA/DT
MDA/DO
MDA/DA
MDA/DS
MDA/BC



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MRBM Program Schedule Baseline (U)

**Schedule
Baseline**

FOUO Status: 13 Jun 2010	FY10				FY11				FY12				FY13				FY14				FY15				FY16			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Program Phase Decision Points Capability Del																												
Element Knowledge Points																												
Models & Sim																												
Pre & Post Flight Test Model Updates																												
Capability Development																												
E-LRALT																												
eMRBM																												
Future MRBM T1																												
MRBM T2																												
MRBM T3																												

Blue = KP #1 (E-LRALT) & events (U)
 Green = KP #2 (E-LRALT) & events (U)
 Brown = KP #3 (E-LRALT) & events (U)
 Purple = KP #4 (eMRBM) & events (U)

Models & Sims
 Purple = new development (U)
 Black = re-use (U)

FOUO

(g)(q)

Attachment 1

Critical Milestones highlighted in Yellow (U)

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MRBM Target to ICC&R Comparison

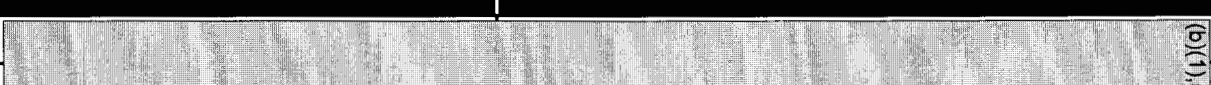
1 2 3 4 5 6 7 8 9 10

1 2 3 4 5 6 7 8 9 10

MRBM Capability

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Knowledge Points

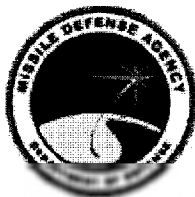
KP #	Description	Demonstrated by	Complete
MRBM #1			
MRBM #2			
MRBM #3			
MRBM #4			

Foto

~~SECRET~~

Approved:

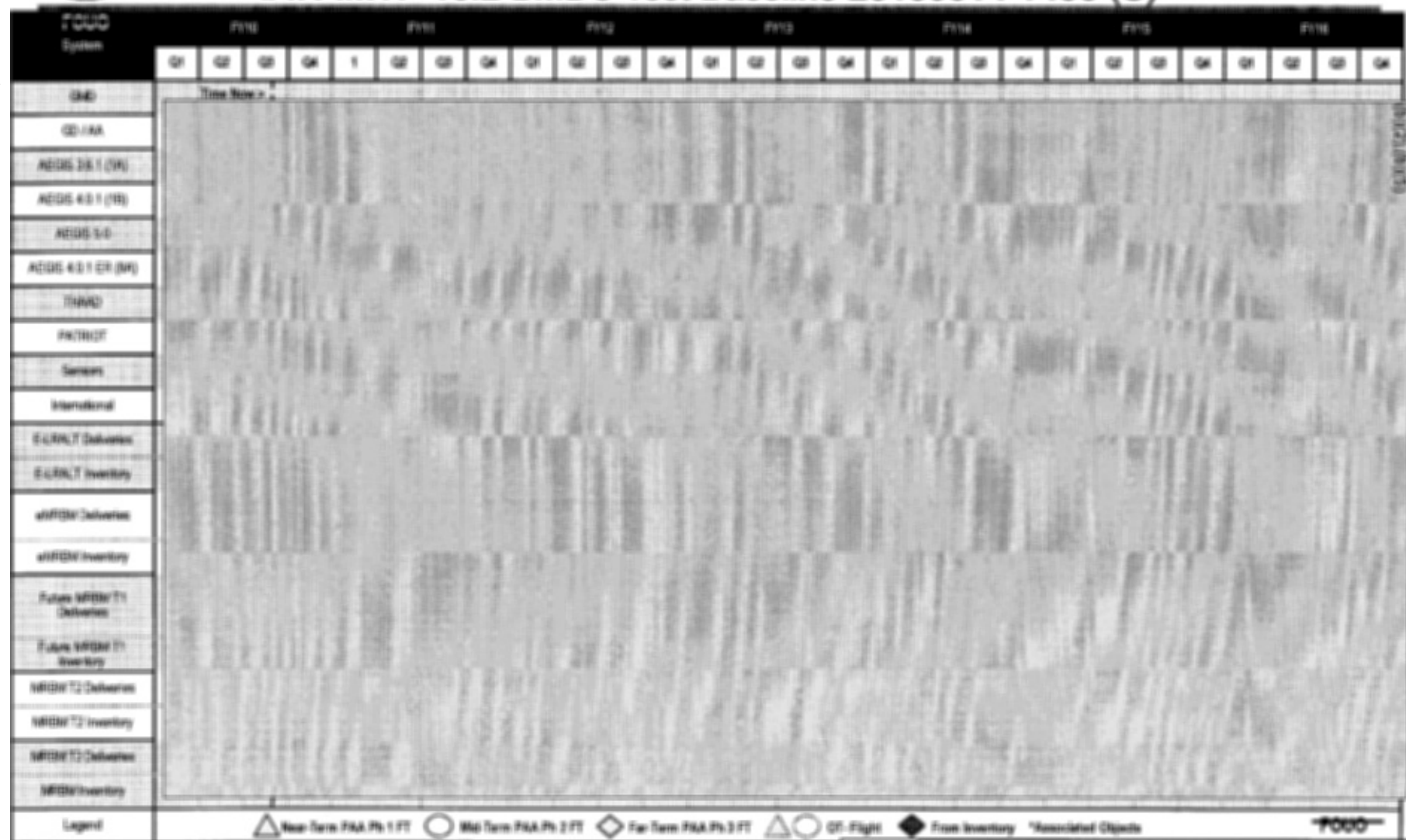
(b)(6)



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**MRBM Program
Test Baseline (U)**

**Test
Baseline**

IAW IMTP 10.2 BMDS Test Baseline 20100614 1400 (U)



Attachment 3

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Approved



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Resource
Baseline

MRBM Target Program BMDs Accountability Report Resource Baseline Summary (U)

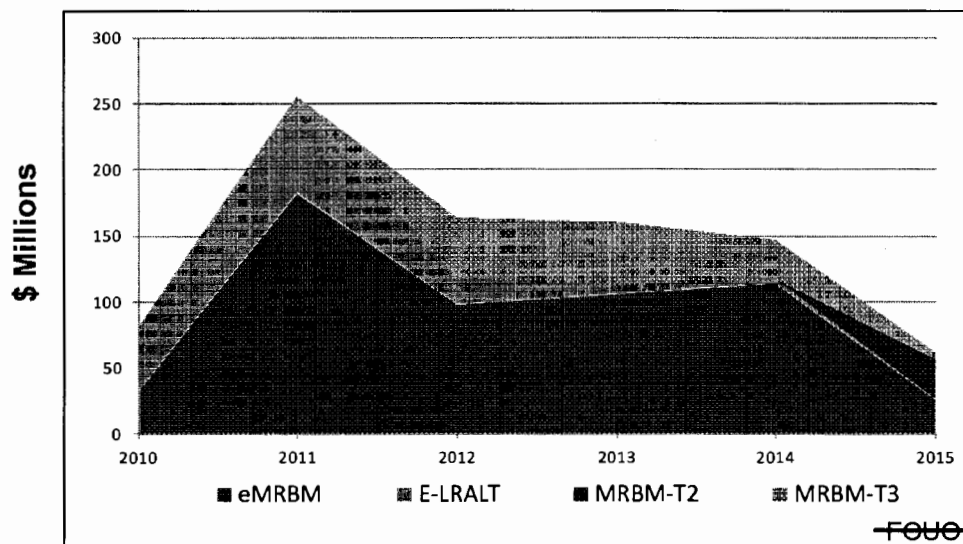
MRBM Non-Recurring BY10SM			
Component	Current Est	Baseline	
eMRBM	236	236	
E-LRALT	91	91	
MRBM-T2	28	28	
MRBM-T3	86	86	
Average Unit Cost BY10SM			
Component	Qty	Current Est	Baseline
eMRBM	9	29	29
E-LRALT	2	41	41
MRBM-T3	2	21	21

MRBM Time Phased Estimate (as of 06/24/2010)										
Costs TY \$M	Sunk	2010	2011	2012	2013	2014	2015	FYDP Total	To Complete	Total
eMRBM	-	32	183	98	106	114	27	560	132	692
E-LRALT	46	49	64	20	6	3	-	143	-	189
MRBM-T2	-	-	-	-	-	-	30	30	109	140
MRBM-T3	-	-	8	45	48	30	6	138	65	203
Development Total	46	81	256	164	161	147	63	871	306	1224
Total Cost Estimate	46	81	256	164	161	147	63	871	306	1224
Funding Delta	-	-	-	-	-	-	-	-	-	-

- Non-Recurring costs include Hardware Development & General Support.
- Average Unit Cost is calculated for missions on manifest FY10-15.

MRBM Cost Estimate Descriptions Documentation			
Cost Analysis Requirements Description			
CARD approval date: 02/01/2010			
Updated Annually			
Program Cost Estimate (FY10 - FY15)			
Date Approved: 6/03/2010			
Life Cycle Cost Estimate (BY10SM)			
Current Estimate	Current Estimate	Baseline	Variance
	To Go	Total	
Development	837	837	837
eMRBM	538	538	538
E-LRALT	140	140	140
MRBM-T2	28	28	28
MRBM-T3	131	131	131
Total Life Cycle	837	837	837
Explanation of Variance			

Time Phased Estimate Chart



- Does not include Launch execution, Range Support & Logistics.

Cost baselines for targets are treated differently because of uncertainty about the quantity of targets needed for testing beyond the FYDP period. As a result, "to complete" costs are not included in cost baselines for targets.

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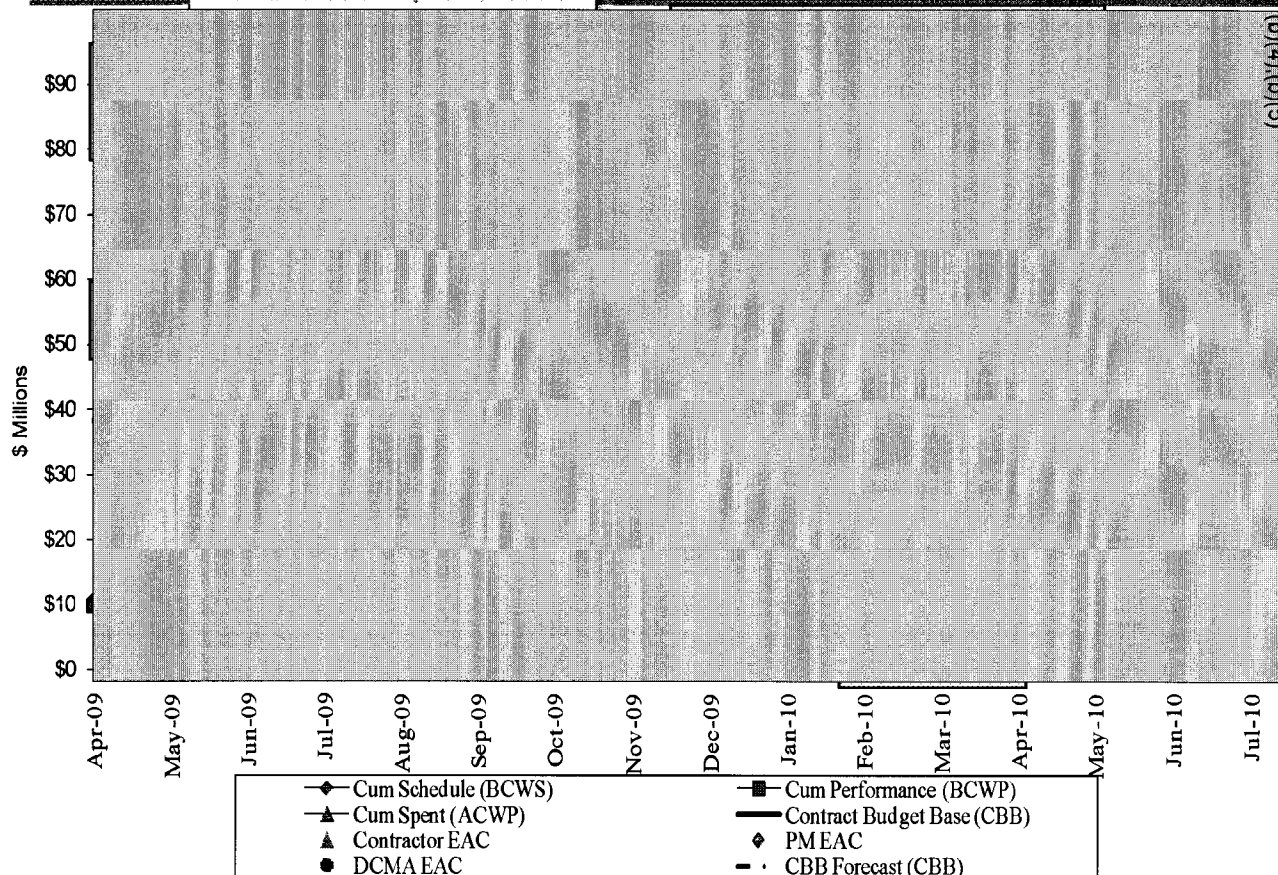
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TC E-LRALT Target Design (U)

Earned Value Management Data

FOUO

MDA EVM Data - Apr 10 CPR Data



Key Cost/Schedule Variance Drivers, Impacts and Actions

CPI (b)(4),(b)(5) SPI (b)(4),(b)(5)

Cum Schedule Variance

(b)(4),(b)(5)

Cum Cost Variance

(b)(4),(b)(5)

Current Cost Variance

Primarily attributed to: (b)(4),(b)(5)

Prime Contractor	Contract Type	CBB	Variances	Cumulative	Current Month		FAC	VAC
L3/Coleman Aerospace Corp	CPIF	(b)(4),(b)(5)	SV		(b)(4),(b)(5)	MDA		(b)(4),(b)(5)
Period of Performance	Last IBR Date	% Complete	CV		(b)(4),(b)(5)	KTR		
Jun 2008 - Oct 2010	TBD	(b)(4),(b)(5)	Level of Effort (LOE) Percentage:		(b)(4),(b)(5)	DCMA		

FOUO

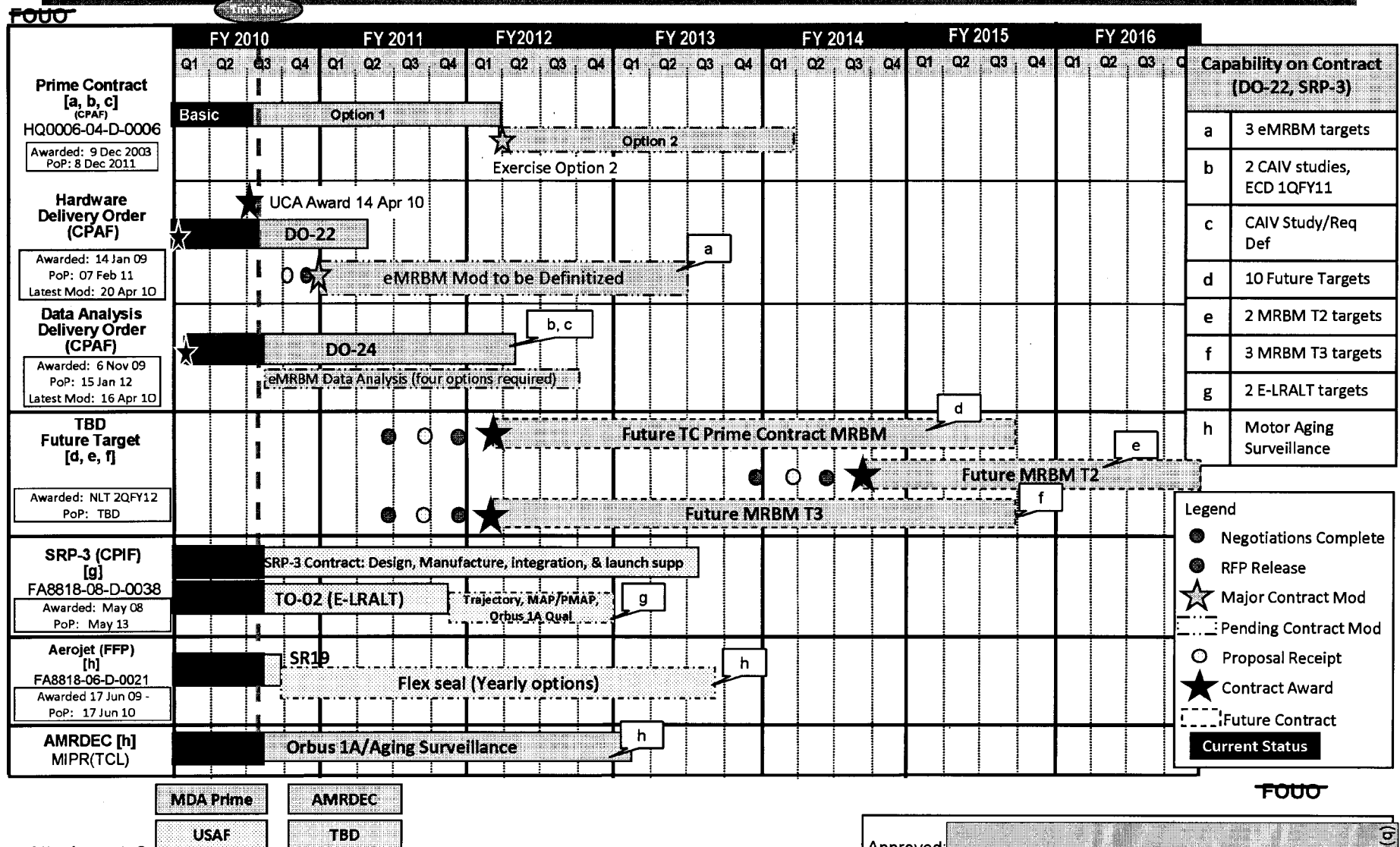
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MRBM Program Contract Baseline (U)

Contract
Baseline



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3.6.4 SRBM (U)

~~SECRET~~

~~SECRET~~



DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
7100 DEFENSE PENTAGON
WASHINGTON, DC 20301-7100

DA

MEMORANDUM FOR PROGRAM DIRECTOR, TARGETS AND
COUNTERMEASURES, MISSILE DEFENSE AGENCY

SUBJECT: Developmental Decision Memorandum for Targets and Countermeasures
Short Range Ballistic Missile (SRBM) Developmental Baseline Review (U)

(U) The attached schedule, technical, test, resource, and contract baselines and activities are approved for the Targets and Countermeasures (TC) SRBM Program.

(U) Changes to the Ballistic Missile Defense System (BMDS) baseline are managed through the Missile Defense Agency (MDA) Program Change Board (PCB) in accordance with MDA Directive 5000.04. PCB-approved changes that affect the TC acquisition will be implemented by the TC Program Office and documented in the Single Acquisition Management Plan. Baseline variances will be reported to the Director, MDA, and included in the annual BMDS Accountability Report.

~~(FOUO)~~ The following activities are directed to occur during the remainder of the TC SRBM Product Development Phase:

- Aegis Readiness Assessment Vehicle (ARAV)-C AO Capable Delta CDR 3QFY2010
- Deliver 2 FMA-2s 1QFY2011
- Short Range Air Launch Target (SRALT) Return to Flight (RTF) 2QFY2011
- Deliver 3 Medium Range Targets (MRT) 3QFY2011
- Deliver 5 Foreign Material Acquisition (FMA)-1s 3QFY2012
- Deliver 4 SRALTs 3QFY2012
- Deliver 4 ARAV-As 2QFY2013
- Deliver 6 ARAV-Bs 4QFY2014
- Deliver 6 ARAV-Cs 4QFY2014

PATRICK J. O'REILLY
Lieutenant General, USA
Director

~~Derived from: Multiple Sources~~
~~Declassify on: May 2034~~

~~SECRET~~

~~SECRET~~

2

Attachments:

1. TC Schedule Baseline (U). This document is "~~FOUO.~~"
2. TC Technical Baseline (U). This document is "~~SECRET.~~"
3. TC Test Baseline (U). This document is "~~FOUO.~~"
4. TC Resource Baseline (U). This document is "~~FOUO.~~"
5. TC Earned Value Management Charts (U). This document is "~~FOUO.~~"
6. TC Contract Baseline (U). This document is "~~FOUO.~~"

cc:

MDA/DX
MDA/DP
MDA/DE
MDA/DT
MDA/DO
MDA/DA
MDA/DS
MDA/BC

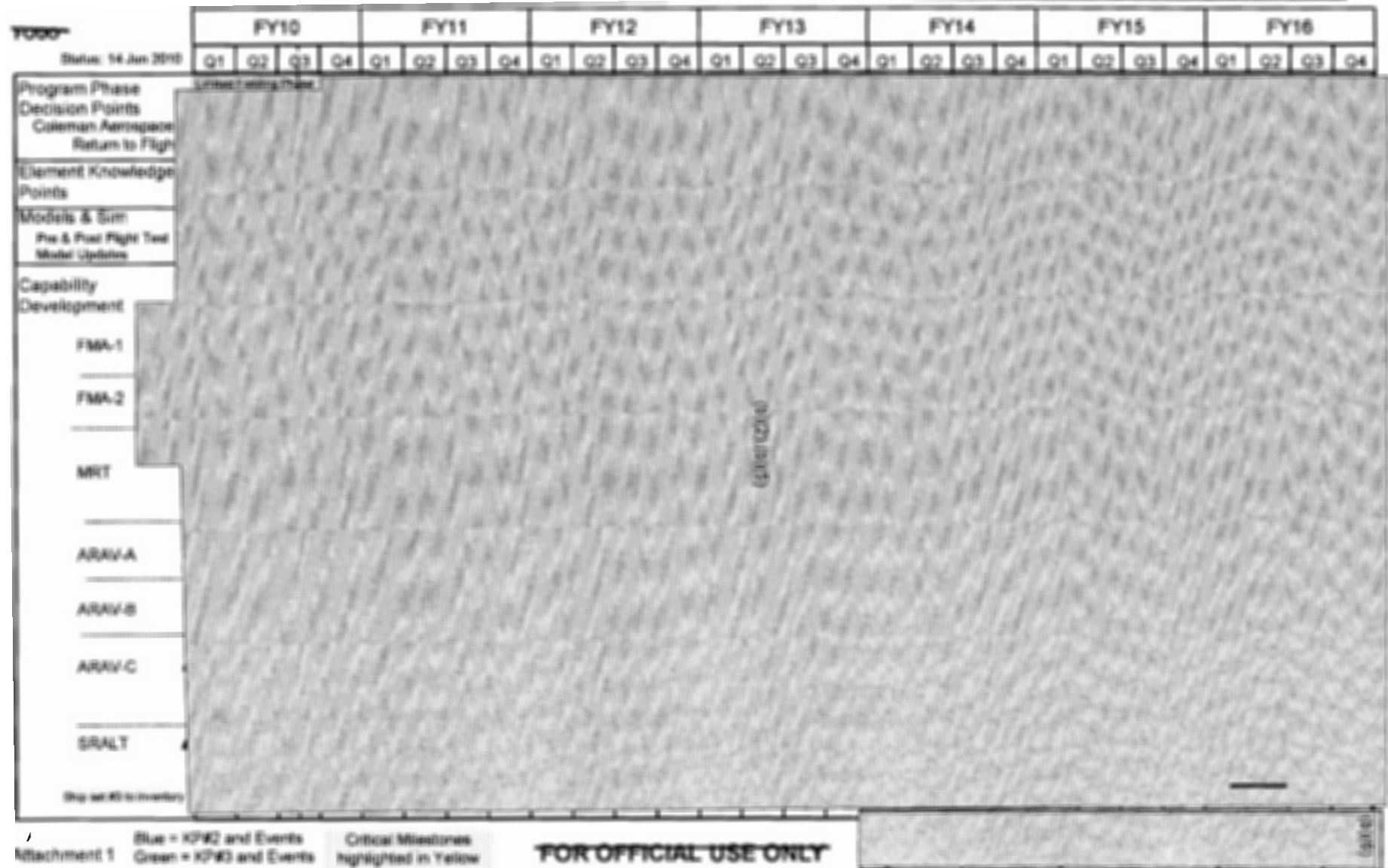
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Schedule
Baseline

SRBM Program Schedule Baseline (U)



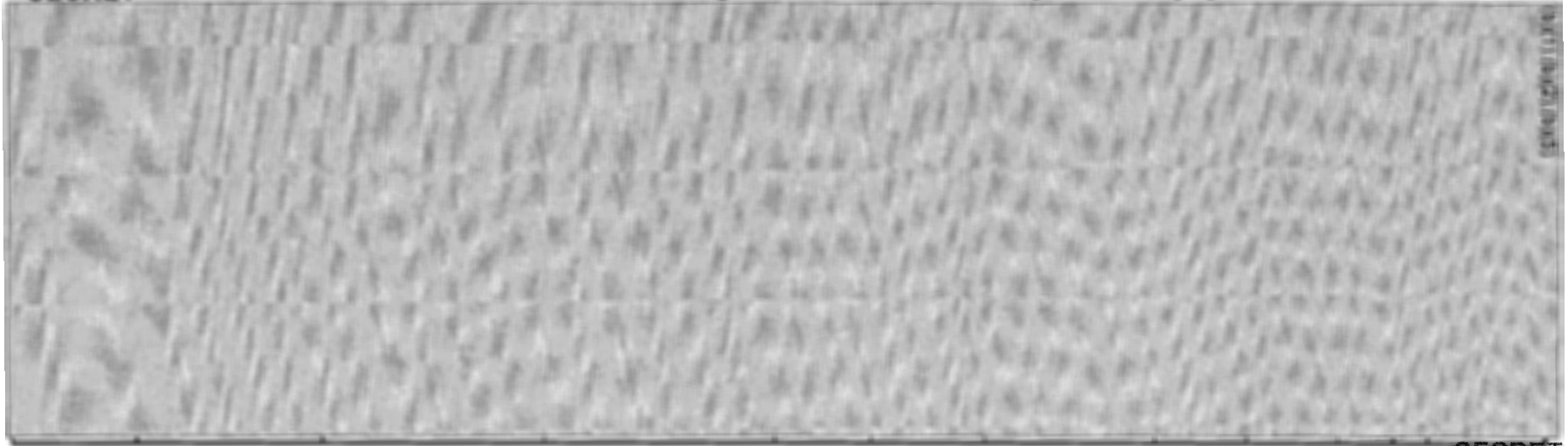


~~SECRET~~

Technical
Baseline

SRBM Program Technical Baseline (U)

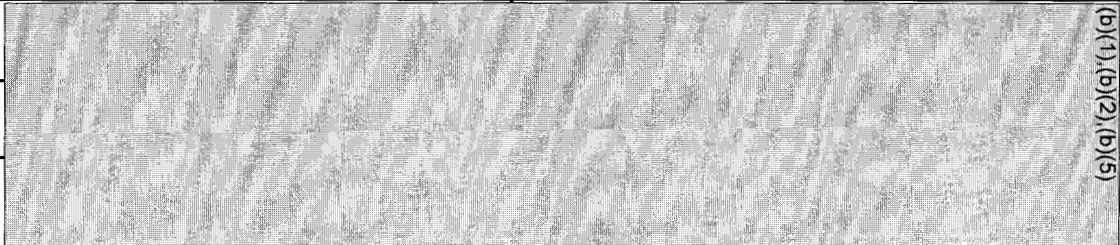
~~SECRET~~
SRBM Target to FCC&R Comparison (U)



~~FOUO~~


Knowledge Points (U)

~~SECRET~~

KP #	Description	Demonstrated by	Complete
SRBM #1		(b)(1),(b)(2),(b)(5) (g)(q)	√ 26 Jan 2010
SRBM #2			
SRBM #3			

~~FOUO~~

Approved


(g)(q)

~~SECRET~~



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SRBM Program Test Baseline (U)

IAW IMTP 10.2 BMDS Test Baseline

Test
Baseline

PLAID System	FY10				FY11				FY12				FY13				FY14				FY15				FY16			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
CMD	Time Now >																											
CC/RA																												
ACDIS 2A 1 (VR)																												
ACDIS 4A 1 (VR)																												
ACDIS 5A																												
ACDIS 4B 1 CR (VR)																												
THAAD																												
PROTECT																												
Sensors																												
Interceptors																												
Technology																												
FMN 1 Deliveries																												
FMN 1 Inventory																												
FMN 2 Deliveries																												
FMN 2 Inventory																												
MBT Deliveries																												
MBT Inventory																												
ATCU A Deliveries																												
ATCU A Inventory																												
ATCU B Deliveries																												
ATCU B Inventory																												
ATCU C Deliveries																												
ATCU C Inventory																												
STRLT Deliveries																												
STRLT Inventory																												
Legend	Near Term FNA Ph 1 FT Mid Term FNA Ph 2 FT Far Term FNA Ph 3 FT CFI Flight Tech FT From Inventory *Associated Objects FORD																											



~~FOR OFFICIAL USE ONLY~~

SRBM Target Program BMDs Accountability Report Resource Baseline Summary (U)

Resource
Baseline

~~FOUO~~

SRBM Unit Cost Baseline						
Non-Recurring BY10\$M			Average Unit Cost BY10\$M			
Component	Current Est	Baseline	Component	Qty	Current Est	Baseline
ARAV-A	3	3	ARAV-A	4	2	2
ARAV-B	20	20	ARAV-B	6	3	3
ARAV-C	39	39	ARAV-C	6	17	17
FMA	9	9	FMA	7	6	6
MRT	3	3	MRT	3	16	16
SRALT	42	42	SRALT	4	27	27

- Non-Recurring costs include Hardware Development & General Support.
- Average Unit Cost is calculated for missions on manifest FY10-15.

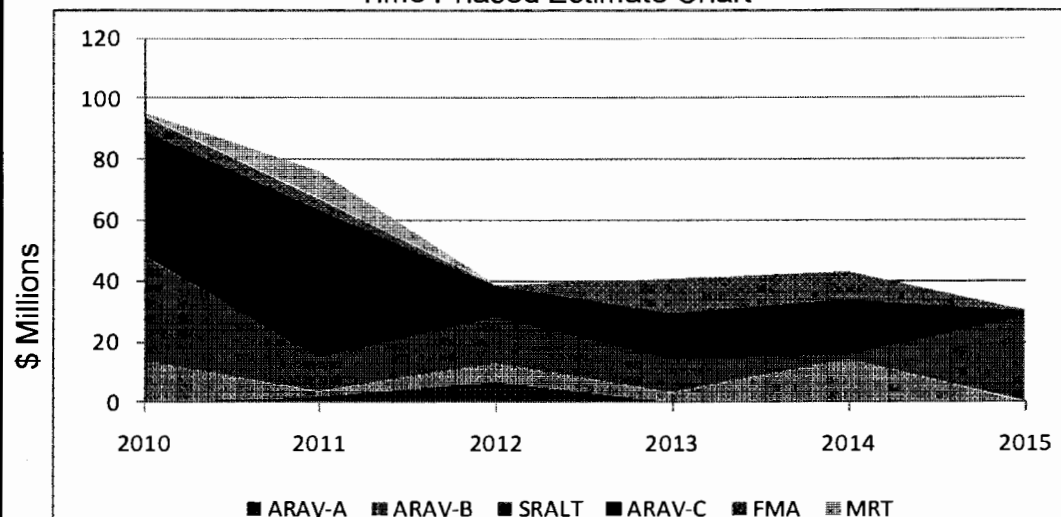
MDA SRBM Time Phased Estimate (As of 01/15/2010)											
Costs TY \$M	Sunk	2010	2011	2012	2013	2014	2015	FYDP Total	To Complete	Total	
ARAV-A	1	-	2	7	0	-	-	9	-	10	
ARAV-B	3	14	2	6	3	14	0	39	-	42	
ARAV-C	50	41	49	10	15	18	2	135	79	264	
FMA	111	5	4	0	11	9	0	30	6	147	
MRT	187	1	9	-	-	-	-	10	-	196	
SRALT	63	35	11	15	11	2	28	103	22	188	
Development Total	415	95	76	39	41	43	31	326	107	848	
Total Cost Estimate	415	95	76	39	41	43	31	326	107	848	

SRBM Cost Estimate Description Documentation			
Cost Analysis Requirements Description			
CARD approval date: 02/01/2010			
Updated Annually			
Program Cost Estimate FY10-FY15			
Date Approved: 06/03/2010			
Life Cycle Cost Estimate (BY10\$M)			
	Current Estimate	Baseline	Variance
	To Go	Total	
Development	317	317	317
ARAV-A	9	9	9
ARAV-B	38	38	38
ARAV-C	132	132	132
FMA	29	29	29
MRT	10	10	10
SRALT	99	99	99
Total Life Cycle	317	317	317
Explanation of Variance			

- Does not include Launch execution, Range Support & Logistics.

~~FOUO~~

Time Phased Estimate Chart



(9)(a)

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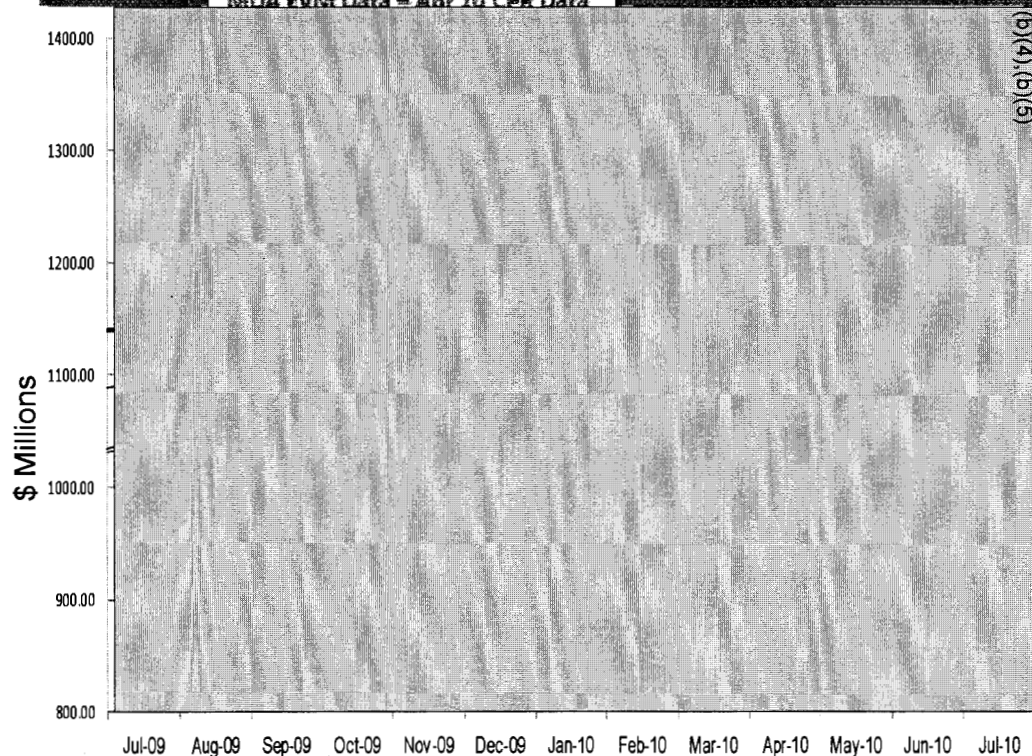
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TC LM Prime Contract Schedule (U)

Earned Value Management Data

FOUO

MDA EVM Data - Apr 10 CBR Data



◆ CUM Scheduled (BCWS)	■ CUM Performed (BCWP)	▲ CUM Spent (ACWP)
— Contract Budget Base (CBB)	▲ Contractor EAC	◆ PMEAC
● DCMAEAC	- - CBB Forecast	

Key Cost/Schedule Variance Drivers, Impacts and Actions

CPI (b)(4), (b)(5) SPI (b)(4), (b)(5)

Cumulative Cost Variance/Schedule Variance Cause, Impacts

Current Cost Variance: (b)(4), (b)(5)

Intermediate Range (Ballistic Missile (IRBM)) (b)(4), (b)(5)

Current Schedule Variance: (b)(4), (b)(5)

IRBM (b)(4), (b)(5)

•High Level of Effort:

(b)(4), (b)(5)

Prime Contractor	Contract Type	CBR	Variances	Cumulative	Current Month		EAC	VAC
Lockheed Martin	CPAF	(b)(4), (b)(5)	SV	(b)(4), (b)(5)	(b)(4), (b)(5)	MDA	(b)(4), (b)(5)	(b)(4), (b)(5)
Period of Performance	Last IBR Date	% Complete	CV			KTR		
Dec 2003 - Dec 2013	3/12/2010	(b)(4), (b)(5)	Level of Effort (LOE) Percentage	(b)(4), (b)(5)	(b)(4), (b)(5)	DCMA		

FOUO

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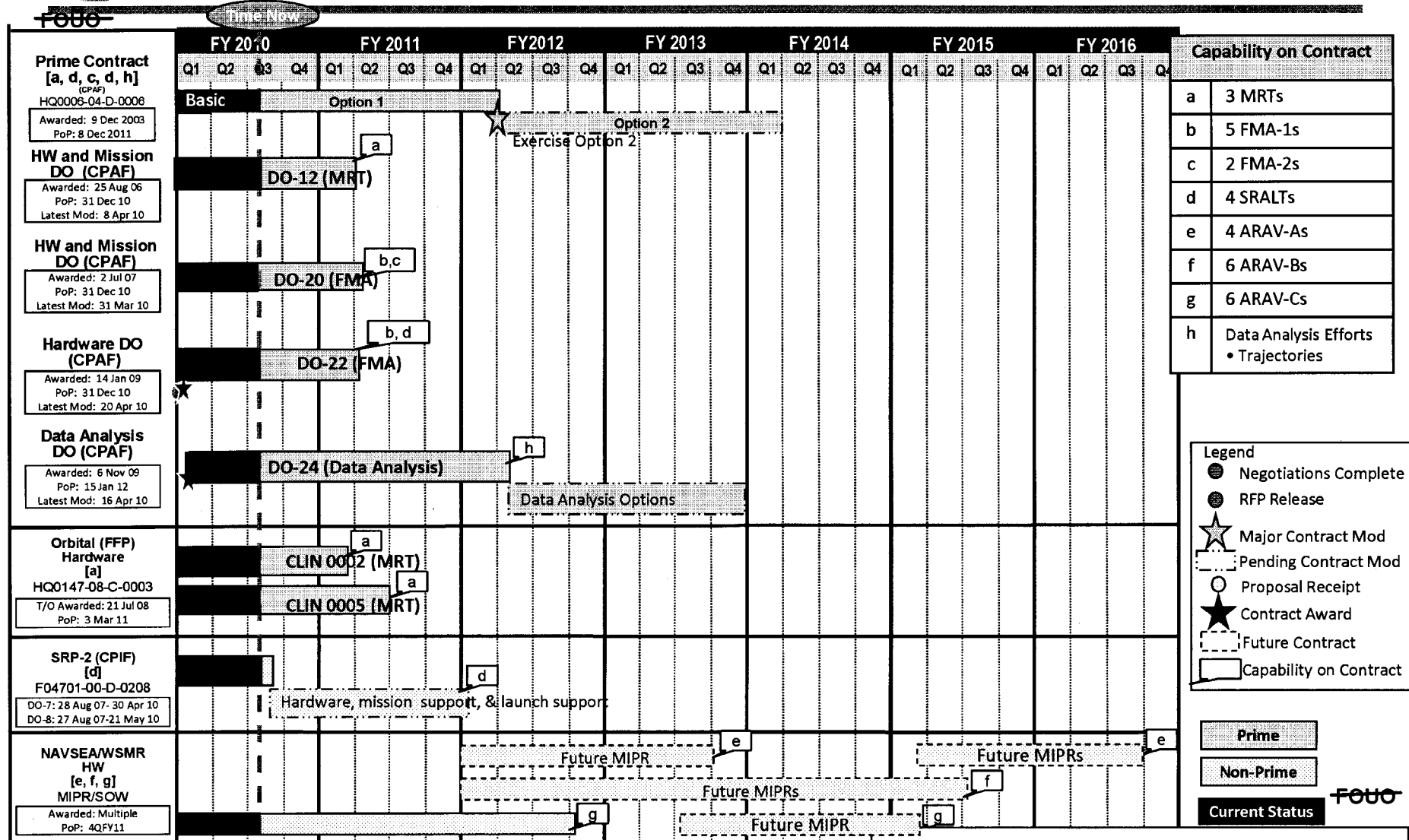
(b)(4), (b)(5)



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SRBM Program Contract Baseline (U)

Contract
Baseline



~~SECRET~~

3.7.1 David's Sling Weapons System (U)

~~SECRET~~



~~SECRET~~

DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
7100 DEFENSE PENTAGON
WASHINGTON, DC 20301-7100

DA

JUN 25 2010

MEMORANDUM FOR PROGRAM MANAGER, DAVID'S SLING WEAPON
SYSTEM

SUBJECT: Developmental Decision Memorandum for David's Sling Weapon System
(DSWS) Developmental Baseline Review (U)


(U) The attached resource, schedule, technical, test and contract baselines and activities are approved for the continued development of the David's Sling Weapon System Program.

(U) Changes to the BMDS baseline are managed through the Missile Defense Agency (MDA) Program Change Board (PCB) in accordance with MDA Directive 5000.04. Any PCB-approved changes that impact the acquisition will be tracked by the MDA/IP Program Office, documented in its System Acquisition Master Plan (SAMP), and baseline variances will be reported to the Director, MDA. Variances from the BMDS baseline will be reported in the annual BMDS Accountability Report (BAR). The DSWS developmental baseline charts are at Attachments 1 through 6.

(b)(1)

(b)(1)

(U) I approve the exit criteria presented in the review, listed in Attachment 6, and expect a Development Baseline Review 2QFY2011.


PATRICK J. O'REILLY
Lieutenant General, USA
Director

~~Derived from: Multiple Sources~~
~~Declassify on: May 2034~~

~~SECRET~~

Attachments:

1. David's Sling Weapon System Schedule Baseline (U). This document is ~~"SECRET."~~
2. David's Sling Weapon System Technical Baseline (U). This document is ~~"SECRET."~~
3. David's Sling Weapon System Test Baseline (U). This document is ~~"SECRET."~~
4. David's Sling Weapon System Resource Baseline (U). This document is ~~"FOUO."~~
5. David's Sling Weapon System Contract Baseline (U). This document is ~~"FOUO."~~
6. David's Sling Weapon System Exit Criteria (U). This document is ~~"FOUO."~~

cc:

MDA/IP
MDA/DX
MDA/DP
MDA/DE
MDA/DT
MDA/DO
MDA/DA
MDA/DS



~~SECRET~~

Schedule
Baseline

David's Sling Block 1 Schedule Baseline*(U)

SECRET	CY 08	2009	2010	2011	2012	2013	2014	2015
	FY 2009	2010	2011	2012	2013	2014	2015	
Program Phase								
Design Reviews								
Decision Points								
Knowledge Points (Definition in-progress in new PA)								
Software Builds								
Capability Development								
Test and Evaluation (DSWS Not in IMTP)								
Flight Tests								
Radar Field Tests								
Initial Lot Production Planning								

Attachment 1
Schedule Baseline

Critical milestones highlighted in yellow

~~SECRET~~
SECRET

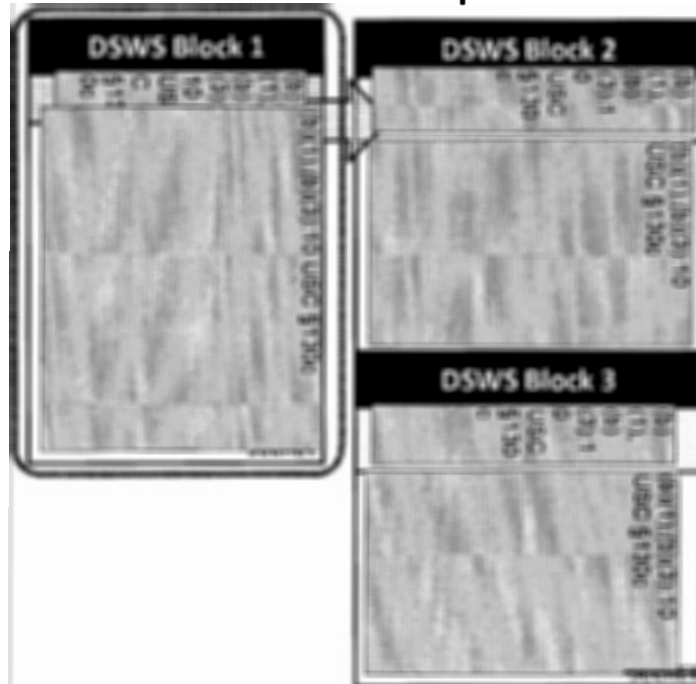


~~SECRET~~

Technical
Baseline

DSWS Program Technical Baseline* (U)

Current and Future Capabilities



(b)(1),
(b)
(3)-10
USC
\$130c

Attachment 2

Knowledge Points**

KP #	Description	Demonstrated By	Complete
1.0			
1.1			
1.2			
1.3			
2.0			
2.1			
2.2			
2.3			
2.4			
2.5			
3.0			
3.1			
3.2			
3.3			
4.0			
4.1			
4.2			
4.3			
4.4			
5.0			
5.1			
6.0			
6.1			
6.2			

**Pending signature of new DSWS
Project Agreement

~~SECRET~~

Approved

(b)(1)



~~SECRET~~

DSWS Program Test Baseline* (U) Not Included in IMTP

Test
Baseline

SECRET		Date: [REDACTED]																							
David's Sling Weapon System		FY10				FY11				FY12				FY13				FY14				FY15			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Test Events	System/Element Flight Tests	[REDACTED]																							
	System Level GT																								
	Chamber/Lab/ Simulation																								
Summary Information	Test Description / Primary Objectives*																								
	[REDACTED]												Acquisition Phase Test Configuration												
[REDACTED]																									
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FOR OFFICIAL USE ONLY

David's Sling Weapon System (DSWS) Block 1 BMDS Accountability Report Resource Baseline Summary (U)

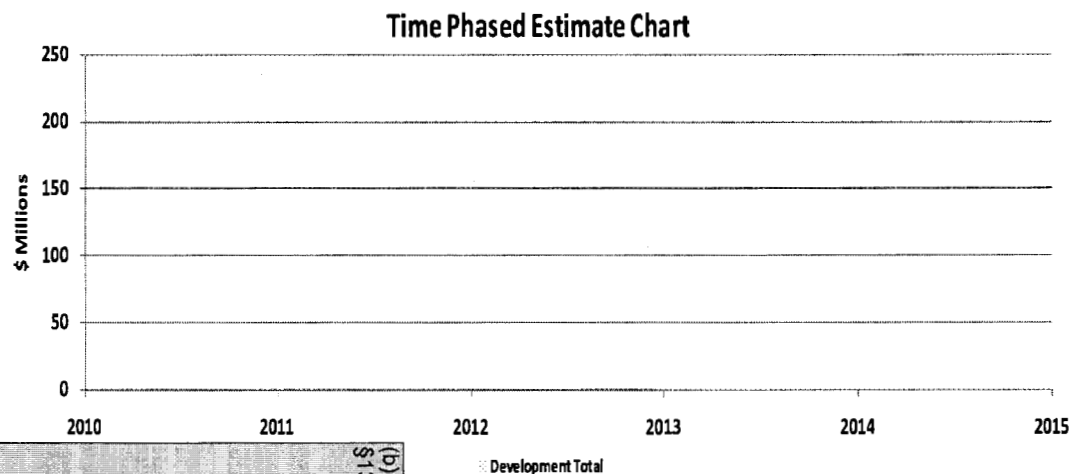
Resource
Baseline

FOUO

David's Sling Weapon System (DSWS) Line Cost Baseline			
Program Acquisition Unit Costs		(b)(3)	(b)(6)
Component	Qty	Current Est	Baseline
		(b)(3)	(b)(6)
Average Procurement Unit Costs		(b)(3)	(b)(6)
Component	Qty	Current Est	Baseline
		(b)(3)	(b)(6)
Program Acquisition Costs		(b)(3)	(b)(6)
Component		Current Est	Baseline
		(b)(3)	(b)(6)

Cost Type	Sub	2009	2010	2011	2012	2013	2014	2015	FYDP Total	% Complete	Total

David's Sling Weapon System (DSWS) Cost Baseline Description	
Cost Analysis Requirements Description	(b)(3); (b)(6)
Life Cycle Cost Estimate	(b)(3); (b)(6)
Explanation of Variance	(b)(3); (b)(6)



Approved:



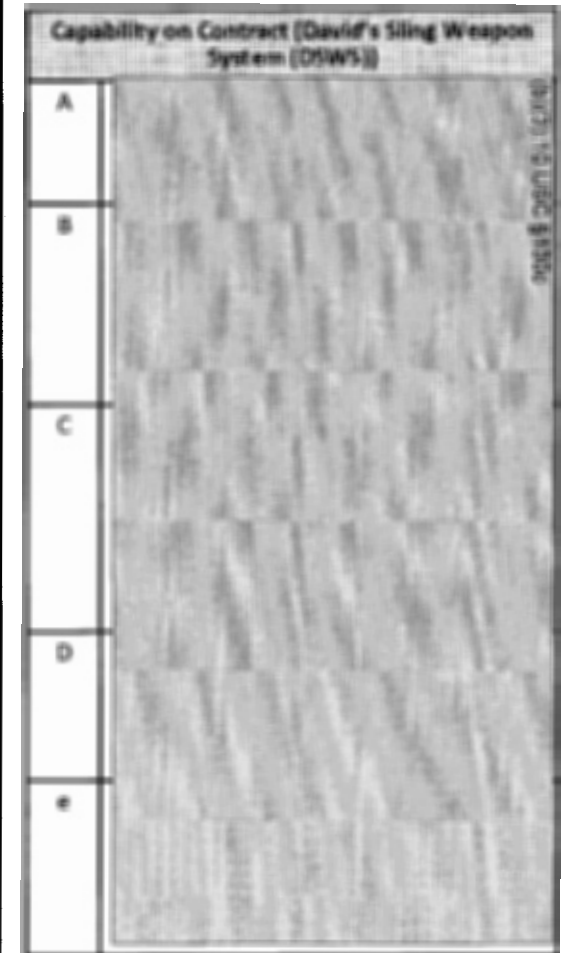
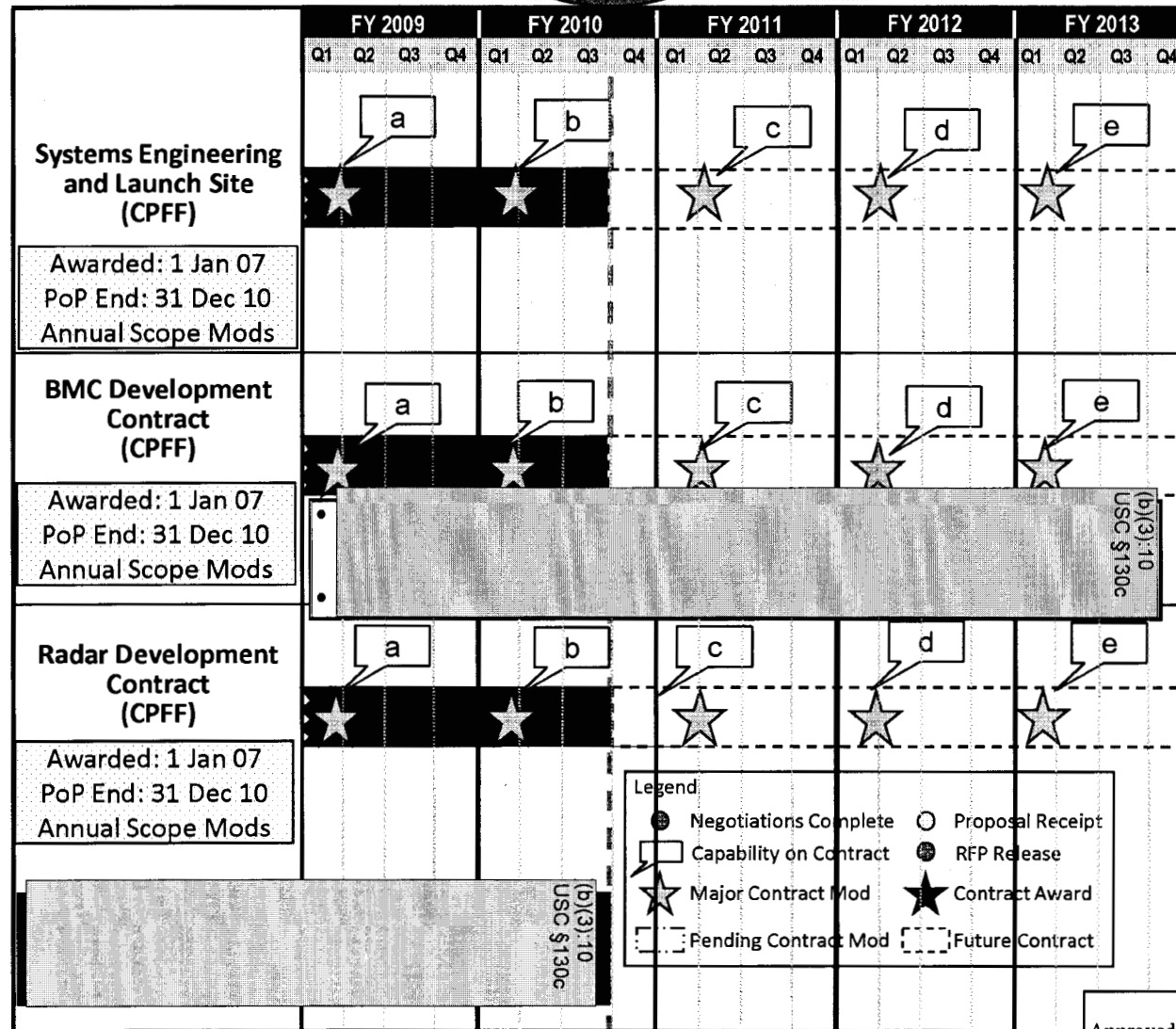
FOR OFFICIAL USE ONLY

David's Sling Program DBR Contract Baseline* (U)

Contract
Baseline

~~FOUO~~

Time Now



Approved:

(b)(6)



~~FOR OFFICIAL USE ONLY~~

Exit Criteria

DSWS Product Development Exit Criteria (U)

#	Exit Criteria	Baseline	Status	Risk
1				
1a				
1b				
2				
2a				
2b				
2c				
2d				
3				
3a				
3b				

~~FOUO~~

Risk to Execution	
Low	
Medium	Y
High	

~~FOR OFFICIAL USE ONLY~~

~~SECRET~~

3.7.2 Arrow 3 (U)

~~SECRET~~



~~SECRET~~

DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
7100 DEFENSE PENTAGON
WASHINGTON, DC 20301-7100

JUN 25 2010

DA

MEMORANDUM FOR PROGRAM MANAGER, ARROW-3

SUBJECT: Development Decision Memorandum for Arrow-3 Developmental Baseline Review (U)


(U) The attached resource, schedule, technical, test and contract baselines and activities are approved for the continued development of the Arrow-3 Program.

(U) Changes to the BMDS baseline are managed through the Missile Defense Agency (MDA) Program Change Board (PCB) in accordance with MDA Directive 5000.04. Any PCB-approved changes that impact the acquisition will be tracked by the MDA/IP Program Office, documented in its System Acquisition Master Plan (SAMP), and baseline variances will be reported to the Director, MDA. Variances from the BMDS baseline will be reported in the annual BMDS Accountability Report (BAR). The Arrow-3 developmental baseline charts are at Attachments 1 through 5.

(b)(1)

(b)(1)

(U) I approve the exit criteria presented in the review, listed in Attachment 6, and expect an initial production decision in second quarter of FY12.


PATRICK J. O'REILLY
Lieutenant General, USA
Director

~~Derived from: Multiple Sources~~
~~Declassify on: May 2034~~

~~SECRET~~

~~SECRET~~

2

Attachments:

1. Arrow-3 Schedule Baseline (U). This document is "~~SECRET~~."
2. Arrow-3 Technical Baseline (U). This document is "~~SECRET~~."
3. Arrow-3 Test Baseline (U). This document is "~~SECRET~~."
4. Arrow-3 Resource Baseline (U). This document is "~~FOUO~~."
5. Arrow-3 Contract Baseline (U). This document is "~~FOUO~~."
6. Arrow-3 Exit Criteria (U). This document is "~~FOUO~~."

cc:

MDA/IP
MDA/DX
MDA/DP
MDA/DE
MDA/DT
MDA/DO
MDA/DA
MDA/DS

~~SECRET~~



SECRET

**Schedule
Baseline**

Upper Tier / Arrow-3 Schedule Baseline* (U)

SECRET	CY 08	2009	2010	2011	2012	2013	2014	2015
	FY	2009	2010	2011	2012	2013	2014	2015

CLASSIFIED BY USCIB 81506

SECRET

Critical Milestones highlighted in Yellow

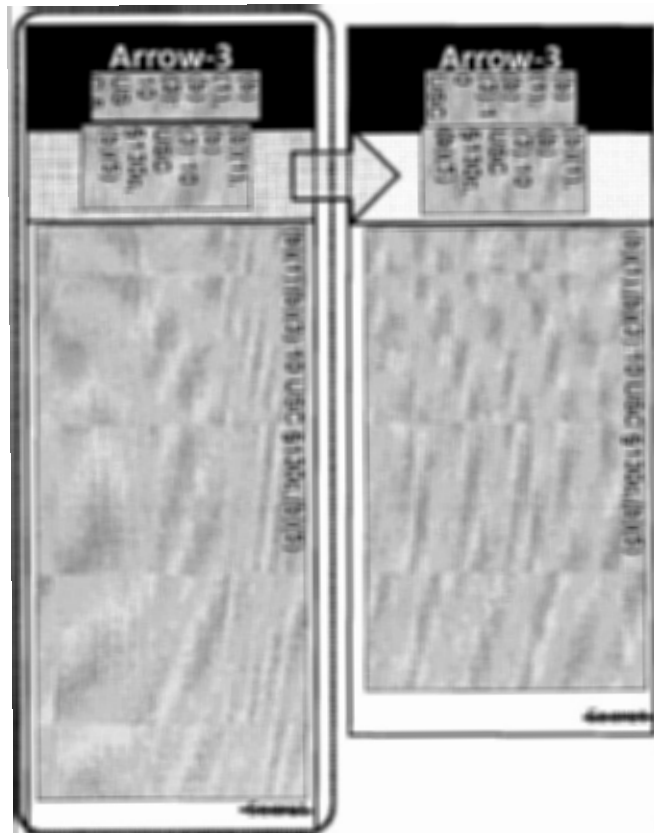


~~SECRET~~

Technical
Baseline

Upper-Tier / Arrow-3 Program Technical Baseline* (U)

Current and Future Capabilities



(b)(1),
(b)
(3):10
USC
\$130c
(b)(5)

Attachment 2

Knowledge Points

KPI#	Description	Demonstrated By	Complete
1.0			
1.1			✓
1.2			✓
1.3			
1.4			
1.5			
1.6			
2.0			
2.1			✓
2.2			
2.3			✓
2.4			
2.5			
2.6			
2.7			
3.0			
3.1			✓
3.2			
3.3			
3.4			
4.0			
4.1			
4.2			
4.3			

~~SECRET~~

Approved

(b)(5)



~~SECRET~~
Upper-Tier/Arrow-3 Program
Test Baseline* (U)
IAW Current BMDS Test Baseline

Test
Baseline

SECRET		Upper-Tier / Arrow-3																											
		FY10				FY11				FY12				FY13				FY14				FY15							
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
Test Events		<div style="text-align: right;">(b)(1),(b)(3):10 USC §130c</div>																											
Summary Information	Test Description / Primary Objectives*	<div style="text-align: right;">(b)(1),(b)(3):10 USC §130c</div>																											
	Acquisition Phase Test Configuration	<div style="text-align: right;">(b)(1),(b)(3):10 USC §130c</div>																											
		<div style="text-align: right;">(b)(1),(b)(3):10 USC §130c</div>																											
<div style="text-align: right;">SECRET</div>																													

*Element Flight Test Pending PAA Phase 1 Flight Test PAA Phase 1 Ground Test Operational Flight Test

CECs: Critical Engagement Conditions Near-Term Flight Test Near-Term Ground Test Operational Ground Test

EMEs: Empirical Measurement Events Mid-Term Flight Test Mid-Term Ground Test

KP: Knowledge Point Far-Term Flight Test Far-Term Ground Test

Approved

(b)(6)



~~FOR OFFICIAL USE ONLY~~

Arrow-3 BMDs Accountability Report

Resource Baseline Summary (U)

Resource
Baseline

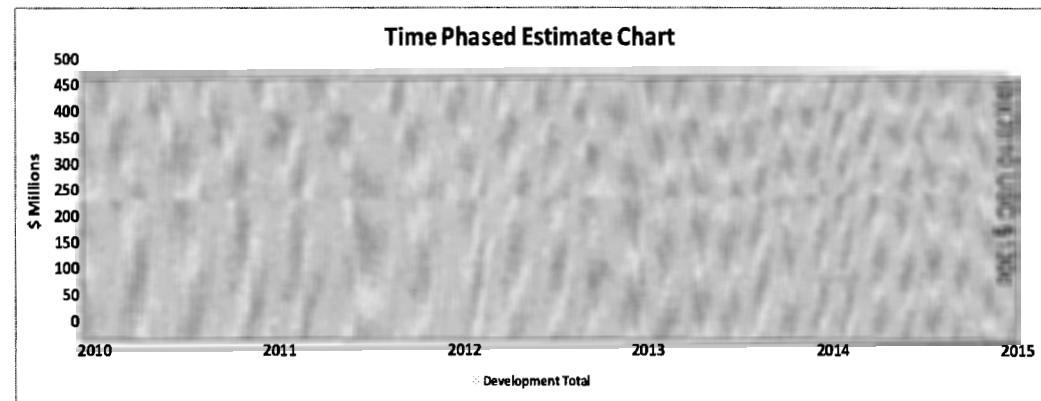
~~FOUO~~

Arrow-3 Unit Cost Baseline			
Program Acquisition Unit Costs			
Component	Qty	Current Est	Baseline
		0c	\$13 US (b)(3)
Average Procurement Unit Costs (BY10\$M)			
Component	Qty	Current Est	Baseline
		0c	\$13 US (b)(3)
Program Acquisition Costs (BY10\$M)			
Component		Current Est	Baseline
		0	3 (b)(3)

Arrow-3 Unit Cost Baseline			
Program Acquisition Unit Costs			
Component	Qty	Current Est	Baseline
		0c	\$13 US (b)(3)
Average Procurement Unit Costs (BY10\$M)			
Component	Qty	Current Est	Baseline
		0c	\$13 US (b)(3)
Program Acquisition Costs (BY10\$M)			
Component		Current Est	Baseline
		0	3 (b)(3)

(b)(3)-10
USC
\$130c

~~FOUO~~



Signed US/Israeli Program Agreement (PA) Pending

Approved:

(b)(6)



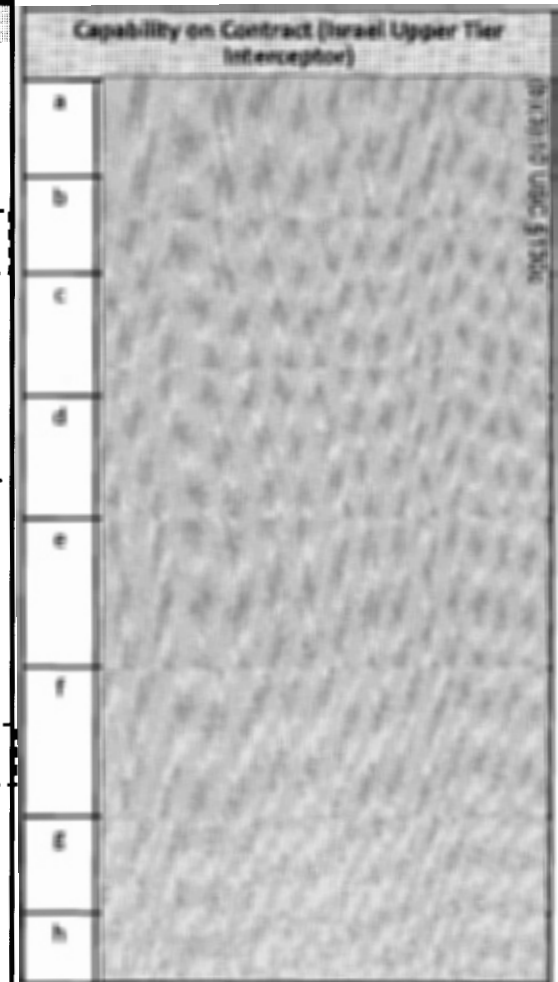
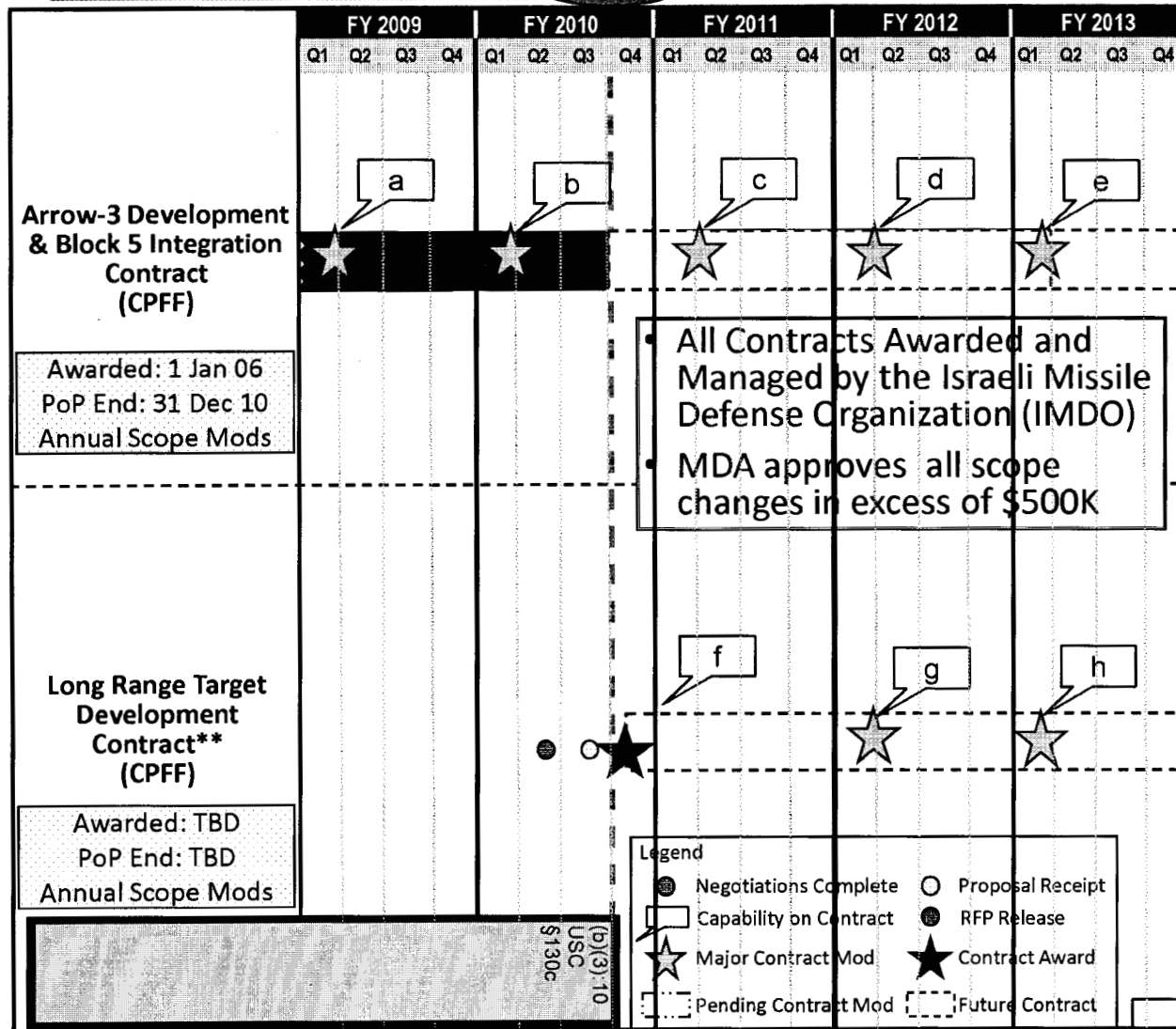
FOR OFFICIAL USE ONLY

Israel Upper Tier Program DBR Contract Baseline* (U)

Contract
Baseline

FOUO

Time Now





~~FOR OFFICIAL USE ONLY~~

Exit Criteria

Upper Tier / Arrow-3 Product Development Exit Criteria (U)

~~FOUO~~

#	Exit Criteria	Baseline	Status	Risk
1				
1a				
1b				
2				
2a				
2b				
2c				
2d				
3				
3a				
3b				

~~FOUO~~

Attachment 6

~~FOR OFFICIAL USE ONLY~~

Risk to Execution
Low
Medium
High

Y

~~SECRET~~

3.7.3 Arrow 2 Block 4 (U)

~~SECRET~~

~~SECRET~~



DA

DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
7100 DEFENSE PENTAGON
WASHINGTON, DC 20301-7100

JUN 25 2010

MEMORANDUM FOR PROGRAM MANAGER, ARROW BLOCK 4

SUBJECT: Development Decision Memorandum for Arrow Block 4 Developmental Baseline Review (U)

(U) The attached resource, schedule, technical, test and contract baselines and activities are approved for the continued development of the Arrow Block 4 Program.

(U) Changes to the BMDS baseline are managed through the Missile Defense Agency (MDA) Program Change Board (PCB) in accordance with MDA Directive 5000.04. Any PCB-approved changes that impact the acquisition will be tracked by the MDA/IP Program Office, documented in its System Acquisition Master Plan (SAMP), and baseline variances will be reported to the Director, MDA. Variances from the BMDS baseline will be reported in the annual BMDS Accountability Report (BAR). The Arrow Block 4 developmental baseline charts are at Attachments 1 through 5.

(b)(1)

(b)(1)

(U) I approve the exit criteria presented in the review, listed in Attachment 6, and expect a Development Baseline Review 2QFY2011.

Patrick J. O'Reilly
PATRICK J. O'REILLY
Lieutenant General, USA
Director

~~Derived from: Multiple Sources~~
~~Declassify on: May 2034~~

~~SECRET~~

Attachments:

1. Arrow Block 4 Weapon System Schedule Baseline (U). This document is ~~"SECRET."~~
2. Arrow Block 4 Weapon System Technical Baseline (U). This document is ~~"SECRET."~~
3. Arrow Block 4 Weapon System Test Baseline (U). This document is ~~"SECRET."~~
4. Arrow Block 4 Weapon System Resource Baseline (U). This document is ~~"FOUO."~~
5. Arrow Block 4 Weapon System Contract Baseline (U). This document is ~~"FOUO."~~
6. Arrow Block 4 Weapon System Exit Criteria (U). This document is ~~"FOUO."~~

cc:

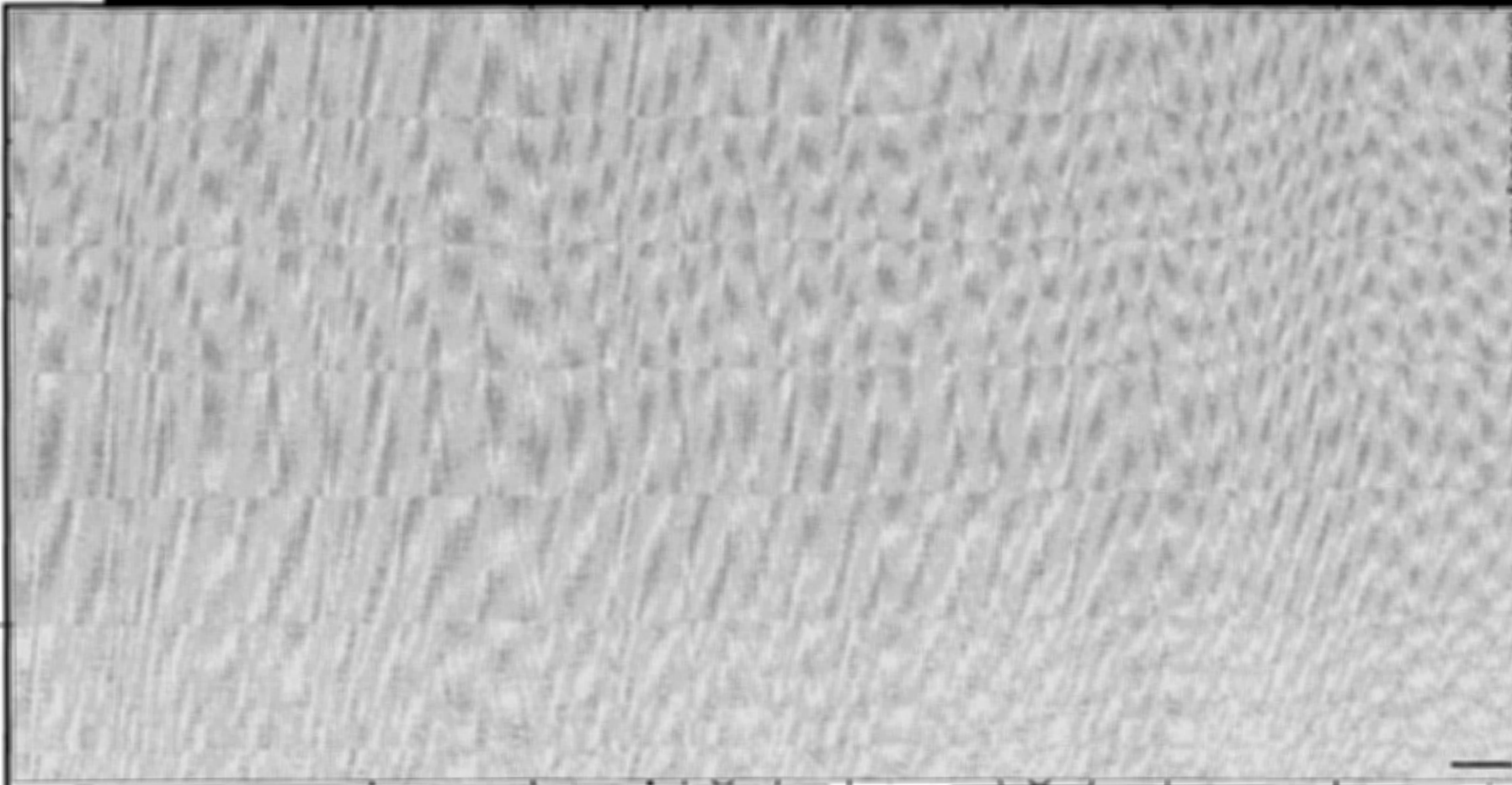
MDA/IP
MDA/DX
MDA/DP
MDA/DE
MDA/DT
MDA/DO
MDA/DA
MDA/DS



SECRET

Schedule
Baseline

Arrow Block 4 Schedule Baseline* (U)

SECRET	CY 08	2009	2010	2011	2012	2013	2014	2015
FY	2009	2010	2011	2012	2013	2014	2015	
								
Attachment 1								

critical milestones highlighted in yellow

SECRET



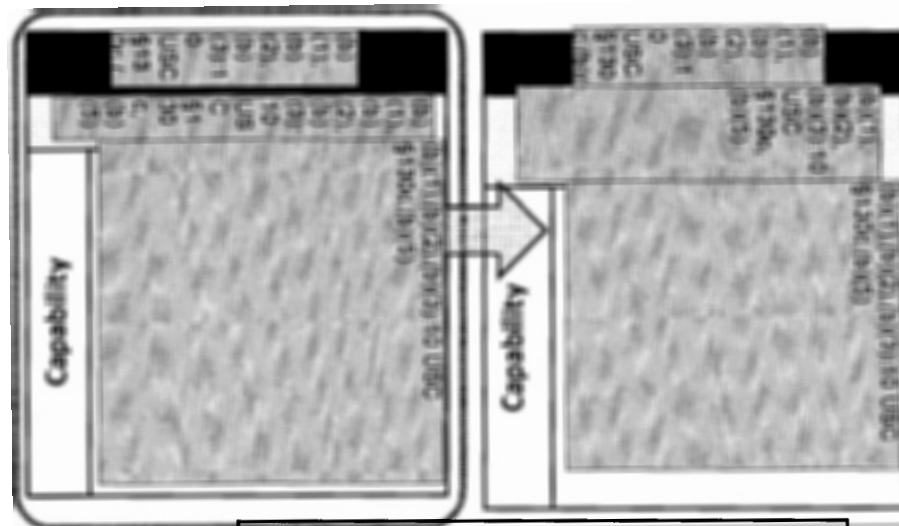
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Arrow Block 4 Program Technical Baseline* (U)

Technical
Baseline

~~SECRET~~

Current and Future Capabilities



~~SECRET~~

Knowledge Points†

KP #	Description	Demonstrated by	Complete
1.0	[Redacted]	USC § 130c, (b)(5)	
1.1			
1.2			

(b)(1),
(b)(2),
(b)(3),
(b)(4),
(b)(5)

(b)(1),
(b)(2),
(b)(3),
(b)(4),
(b)(5)

Approved

(b)(6)

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Test Baseline

Arrow Block 4		FY10				FY11				FY12				FY13				FY14				FY15			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Test Events																									
Summary Information	Test Description / Primary Objectives*																								
		<div> <div> <div>Event</div> <div>(b)(1), (b)(3):10 USC \$130c</div> </div> <div> <div>(b)(1), (b)(3):10 USC \$130c</div> <div>(b)(1), (b)(3):10 USC \$130c</div> </div> </div>																							

* Element Flight Test Pending PAA Phase 1 Flight Test PAA Phase 1 Ground Test Operational Flight Test

CECs: Critical Engagement Conditions Near-Term Flight Test Near-Term Ground Test Operational Ground Test

EMEs: Empirical Measurement Events Mid-Term Flight Test Mid-Term Ground Test

KP: Knowledge Point Far-Term Flight Test Far-Term Ground Test

Approved

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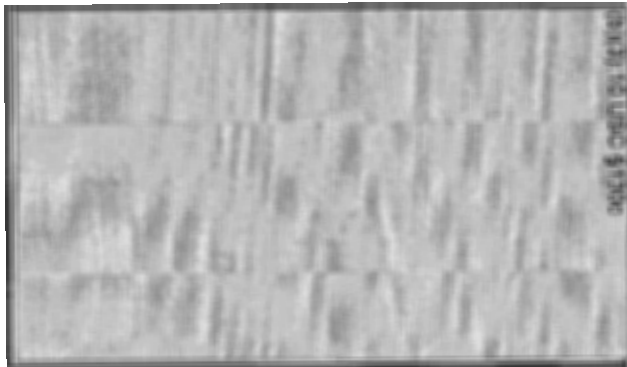


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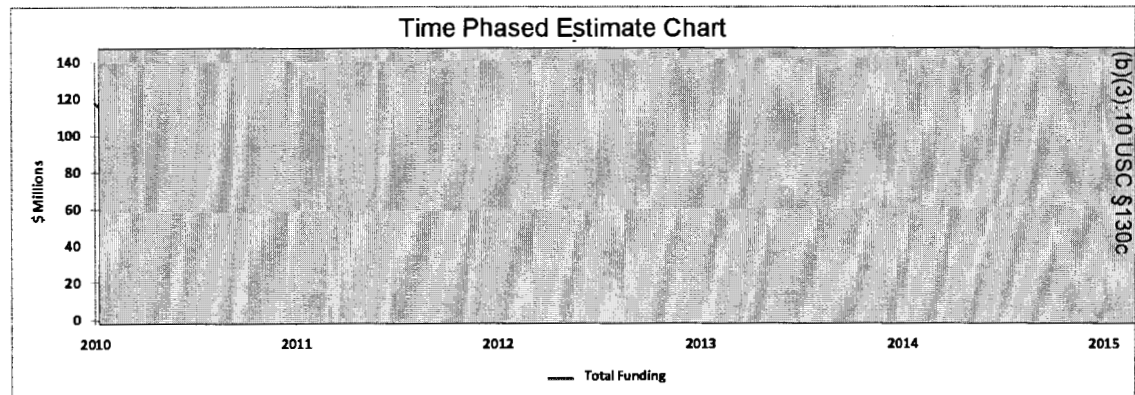
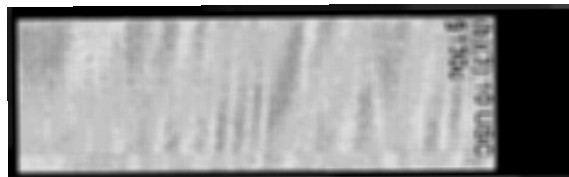
Arrow Block 4 Program PB 11 Budget Only* (U)

Resource
Baseline

~~FOUO~~



Category	2010	2011	2012	2013	2014	2015	From	To	Comments	Total
Cost, FY 2010										
USC										
USC										



~~FOUO~~



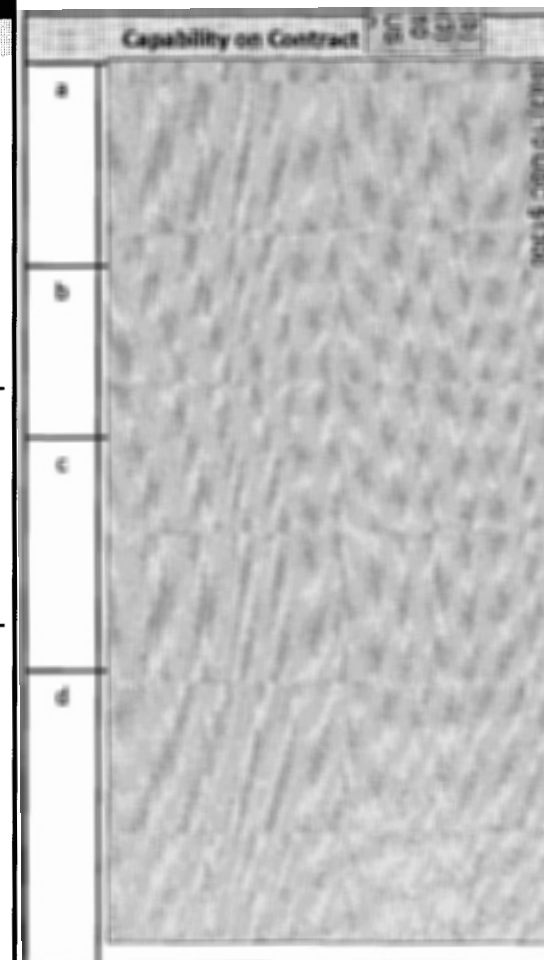
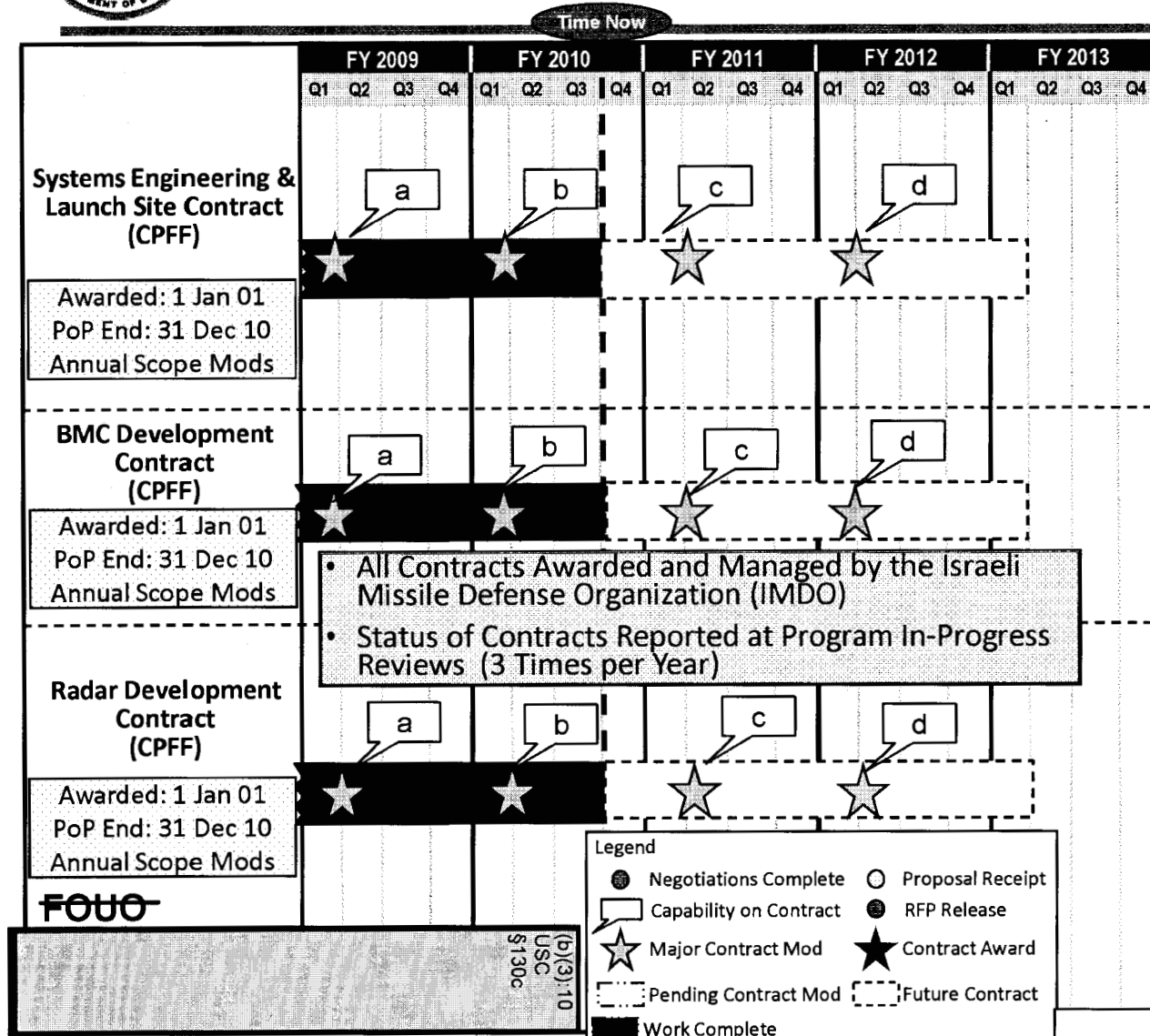


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Arrow Block 4 Program DBR Contract Baseline* (U)

Contract
Baseline

~~FOUO~~





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Exit Criteria

Arrow Weapon System Block 4 Product Development and Production Phases Exit Criteria (U)

~~FOUO~~

	Exit Criteria	Baseline	Status	Risk
1	System Performance Verified			
1a				
1b				
1c				
1d				
2				
2a				
2b				
2c				
2d				

~~FOUO~~

Risk to Execution	
Low	
Medium	Y
High	

~~SECRET~~

3.8.1 Precision Tracking and Space Surveillance (PTSS) (U)

~~SECRET~~



~~SECRET~~

DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
7100 DEFENSE PENTAGON
WASHINGTON, DC 20301-7100

JUN 29 2010

MEMORANDUM FOR PROGRAM MANAGER, PRECISION TRACKING SPACE
SYSTEM

SUBJECT: Materiel Solutions Analysis Decision Memorandum for Precision Tracking
Space System (PTSS) (U)

(U) I approve the plan and approach for the materiel solutions analysis (MSA) for the Precision Tracking Space System. I approve the attached initial technical, schedule, contracts, and resource objectives and plans and the MSA exit criteria.

(U) The following activities are directed to occur during the remainder of the PTSS MSA phase:

- System Concept Review Completion 4QFY10
- Capability Planning Specification Delivery 4QFY10
- Technology Development Decision 1QFY11

(U) The PTSS Program Manager will provide quarterly reviews to assess progress of the analysis and updates to the objectives and plans. I expect to review the analysis in 1QFY11 to make a Technology Development Decision to transition PTSS to the Technology Development Phase.

PATRICK J. O'REILLY
Lieutenant General, USA
Director

~~Derived from: Multiple Sources~~
~~Declassify on: May 2034~~

~~SECRET~~

~~SECRET~~

Attachments:

1. PTSS MSA Schedule Plan (U). This document is "~~FOUO~~."
2. PTSS MSA Technical Objectives (U). This document is "~~SECRET~~."
3. PTSS MSA Resources Plan (U). This document is "~~FOUO~~."
4. PTSS MSA Contracts Plan (U). This document is "~~FOUO~~."
5. PTSS MSA Exit Criteria (U). This document is "~~FOUO~~."

cc:

MDA/AB
MDA/DX
MDA/DP
MDA/DE
MDA/DT
MDA/DO
MDA/DA
MDA/DS

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Schedule Plan

PTSS Schedule (U)

~~FOUO~~

Time Now

	FY10				FY11				FY12				FY13				FY14				FY15				FY16			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	OND	JFMAM	JAS	OND	JFMAM	JAS	OND	JFMAM	JAS	OND	JFMAM	JAS	OND	JFMAM	JAS	OND	JFMAM	JAS	OND	JFMAM	JAS	OND	JFMAM	JAS	OND	JFMAM	JAS	OND
Missionware																												
Mission Systems Engineering & Operations Testing																												
Performance Assessment																												
Ground Segment																												
Mission Operations Management Systems (MOMS)																												
Ground Entry Point (GEP)																												
Constellation Operations (COPS)																												
Space Segment																												
Payload																												
Optical Payload																												
Comms Payload																												
Spacecraft																												
Test Beds (TB)																												
Flight Software																												

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Attachment 1

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(U)

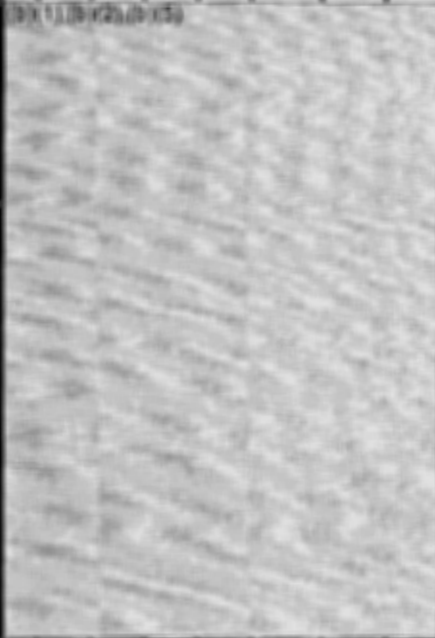


PTSS -- Technical Objectives (U)

Future Capabilities

FOUO	The Air & Missile Defense Prioritized Capabilities List of 18 March 2010 (U)	Combatant Command Capability Needs	Enduring Capabilities
		(b)(1),(b)(2),(b)(5)	(b)(1),(b)(2),(b)(5)

Knowledge Points

	Tech. Dev. Phase	M.S.-A Phase	Cost	Description	Intermediates No.	Designs
*			*			<input checked="" type="checkbox"/>
%			%			<input checked="" type="checkbox"/>
*			*			<input checked="" type="checkbox"/>
%			%			
*			*			
%			%			

Approved:

(b)(6)

Attachment 2



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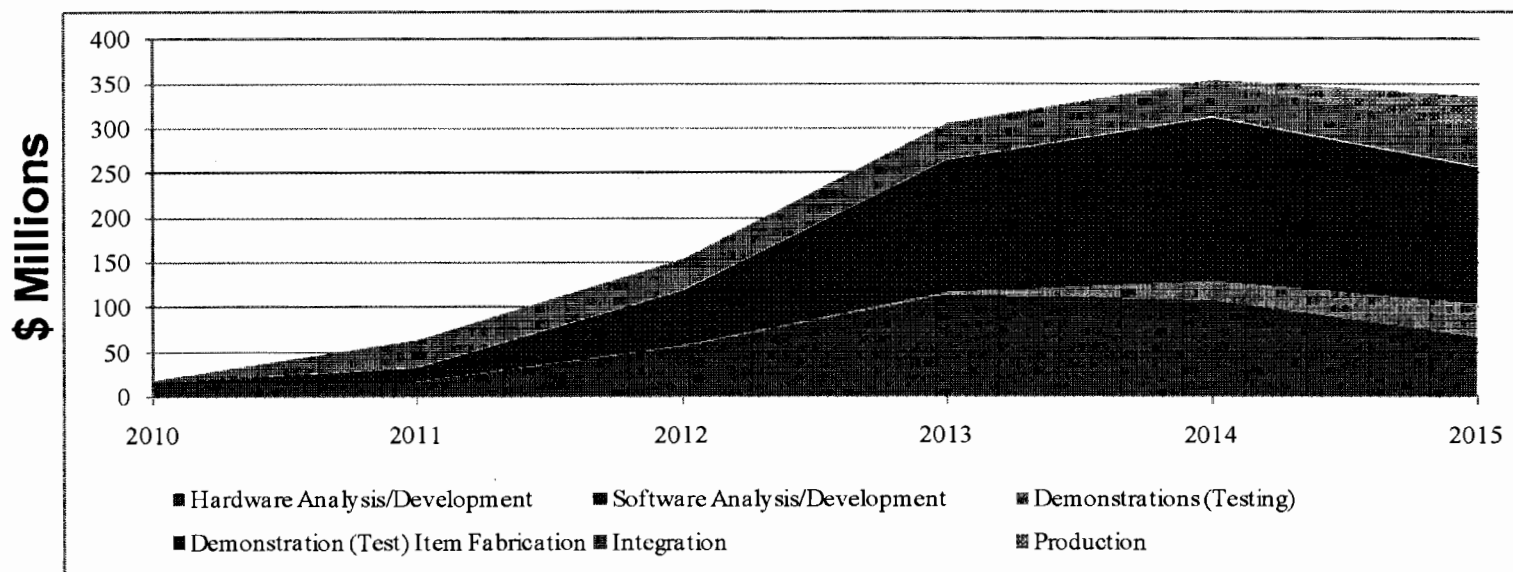
Resource Plan

PTSS – Resource Plan (U)

~~FOUO~~

Time Phased Estimate								
Costs TY \$M	Sunk	2010	2011	2012	2013	2014	2015	FYDP Total
Hardware Analysis/Development	2	17	18	46	93	86	55	315
Software Analysis/Development			0	11	22	22	13	68
Demonstrations (Testing)			1	1	3	22	38	64
Demonstration (Test) Item Fabrication			15	61	148	182	152	559
Integration	6	3	31	34	41	37	42	187
Production						5	36	41
Cost Estimate	8	20	65	154	305	354	336	1233

Time Phased Estimate Chart



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Attachment 3

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(b)(6)

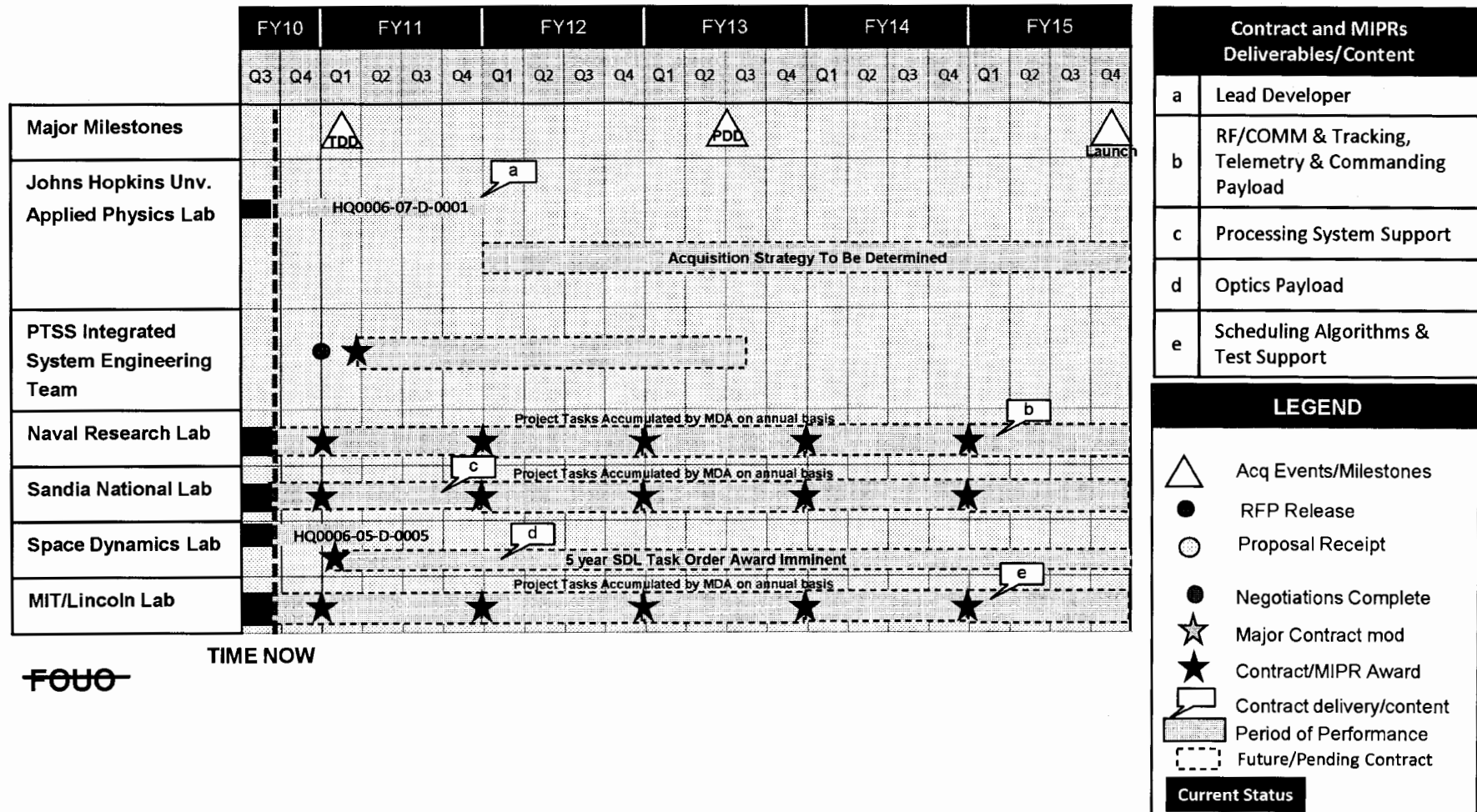


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Contracts Plan

PTSS - Contracts Plan (U)

FOUO





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Exit Criteria

Exit Criteria from Materiel Solution Analysis Phase (U)

~~FOUO~~

Exit Criteria	Baseline Component	Required For Technology Development Decision
1) Define an operational concept		
1 A) Developmental ops concept approved at System Concept Review	Operational	G
2) Identify competitive alternative materiel solutions		
2 A) Alternatives available at System Concept Review	Technical	G
3) Establish current critical technology maturity		
3 A) Identify knowledge points for Tech Dev Phase	Technical	G
4) Adequate funding for technology developments		
4A) Approved budget for Tech Dev Phase 4B) Prepared Cost Analysis Requirements Document	Resource	G

~~FOUO~~

Risk to Execution

Low
Medium
High



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3.8.2 Aegis SM-3 Block IIB (U)

~~SECRET~~



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DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
7100 DEFENSE PENTAGON
WASHINGTON, DC 20301-7100

JUN 29 2010

MEMORANDUM FOR PROGRAM MANAGER, STANDARD MISSILE 3 BLOCK
IIB

SUBJECT: Materiel Solutions Analysis Decision Memorandum for Standard Missile 3
Block IIB (SM-3 BLK IIB) (U)

(U) I approve the plan and approach for the Materiel Solutions Analysis (MSA) for the Standard Missile 3 Block IIB. I approve the attached initial technical, schedule, contracts, and resource objectives and plans and the MSA exit criteria.

(U) The following activities are directed to occur during the remainder of the SM-3 BLK IIB MSA phase:

- System Concept Review Completion 4QFY10
- Capability Needs Document Delivery 4QFY10
- Technology Development Decision 1QFY11

(U) The SM-3 BLK IIB Program Manager will provide quarterly reviews to assess progress of the analysis and updates to the objectives and plans. I expect to review the analysis in 1QFY11 to make a Technology Development Decision to transition SM-3 Block IIB to the Technology Development Phase.

PATRICK J. O'REILLY
Lieutenant General, USA
Director

~~Derived from: Multiple Sources~~
~~Declassify on: May 2034~~

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~~SECRET~~

Attachments:

1. SM-3 IIB MSA Schedule Plan. (U) This document is "~~FOUO~~."
2. SM-3 IIB MSA Technical Objectives. (U) This document is "~~SECRET~~."
3. SM-3 IIB MSA Resources Plan. (U) This document is "~~FOUO~~."
4. SM-3 IIB MSA Contracts Plan. (U) This document is "~~FOUO~~."
5. SM-3 IIB MSA Exit Criteria. (U) This document is "~~FOUO~~."

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MDA/DA
MDA/DS

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Schedule Plan

SM-3 IIB Schedule Plan (U)

~~FOUO~~

	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20
Milestones											
Trade Studies and Analysis											
Technology Risk Reduction											
Concept Definition (Primes)											
Product Development											
LDACS Static Tests											
SSRM Static Tests											
TSRM Static Tests											
IM Tests (2 ea. FCO, SCO, BI, FI, SD)											
HC Tests (environ, drop, shock, E3)											
Launcher Integration Tests											
Flight Tests											
Production											

Time now

IM = Insensitive Munitions, HC = Hazard Classification, FCO = Fast Cook-Off, SCO = Slow Cook-Off, BI = Bullet Impact, FI = Fragment Impact, SD = Sympathetic Detonation



System Engineering or Test Milestone



Acquisition Milestone

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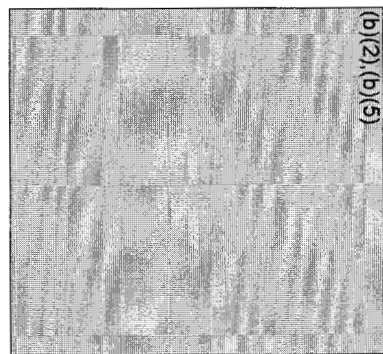
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Technical Objectives

SM-3 IIB - Materiel Solutions Analysis Technical Objectives (U)

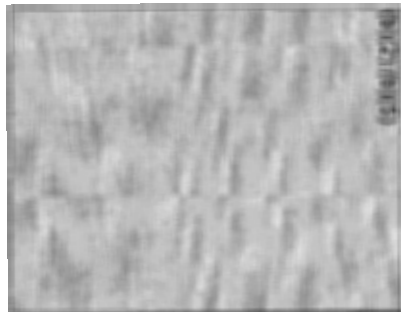
~~FOUO~~ Prioritized Capabilities List (PCL) 2009

Combatant Command Needs



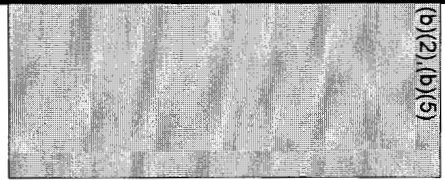


(b)(2),(b)(5)

Enduring Capabilities



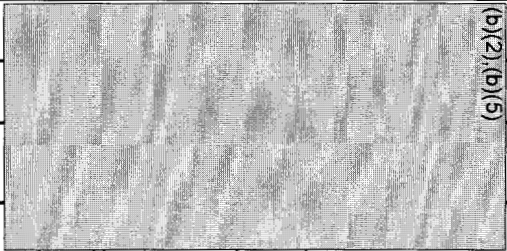
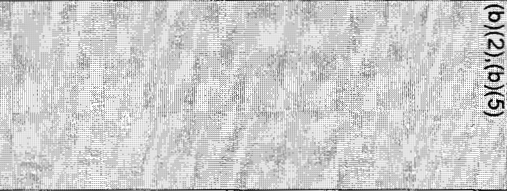
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Future Capabilities

Key Functions	Capabilities (Approximate)
	
(b)(2),(b)(5)	(b)(2),(b)(5)
FOUO	
Interdependencies	
	
(b)(2),(b)(5)	
FOUO	

~~FOUO~~

Knowledge Points (U)

KP #	MSA Phase Description	Demonstrated by	Complete
1		System Concept Review (SCR)	✓
2		SCR	✓
3		SCR	
4		SCR	
(b)(2),(b)(5)			
KP #	Tech Dev Phase Description	Demonstrated by	Complete
1		Systems Readiness Review (SRR)	
2		SRR	
3		SRR	
(b)(2),(b)(5)			

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Approved



(b)(6)



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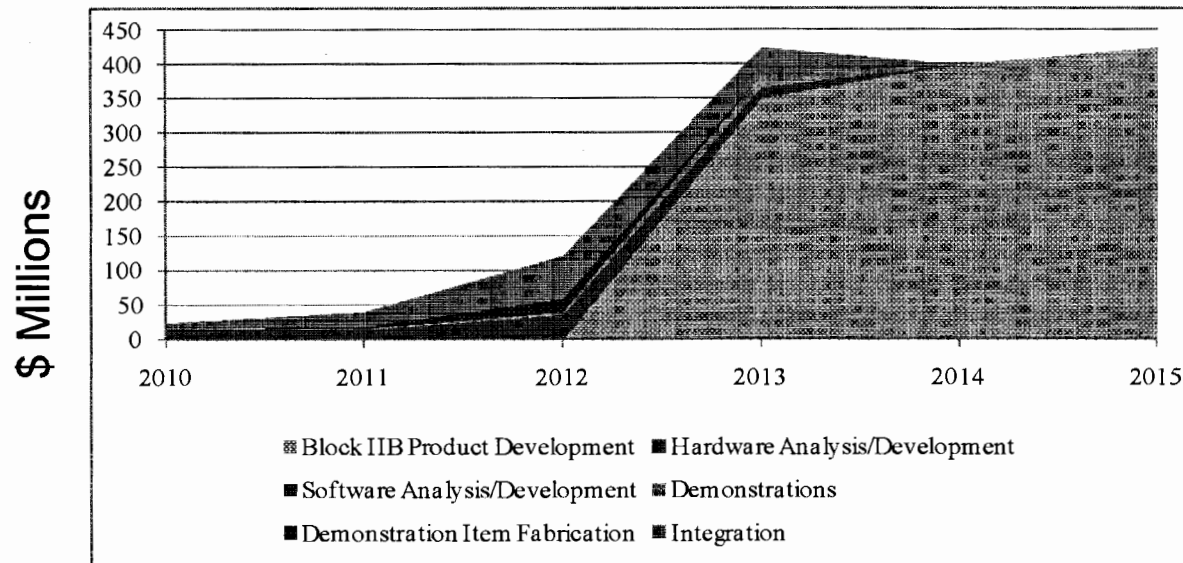
Resource Plan

SM-3 Block IIB – BMDS Accountability Report (U)

Time Phased Estimate								
Costs TY \$M	Sunk	2010	2011	2012	2013	2014	2015	FYDP Total
Hardware Analysis/Development	10	18	16	37	16			88
Software Analysis/Development								
Demonstrations	4	2		3	17			22
Demonstration Item Fabrication	38	0	3	20				23
Integration		5	22	62	42			131
Block IIB Product Development					350	400	425	1175
Cost Estimate	51	25	41	122	425	400	425	1438

~~FOUO~~

Time Phased Estimate Chart



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Approved

(b)(7)(D)

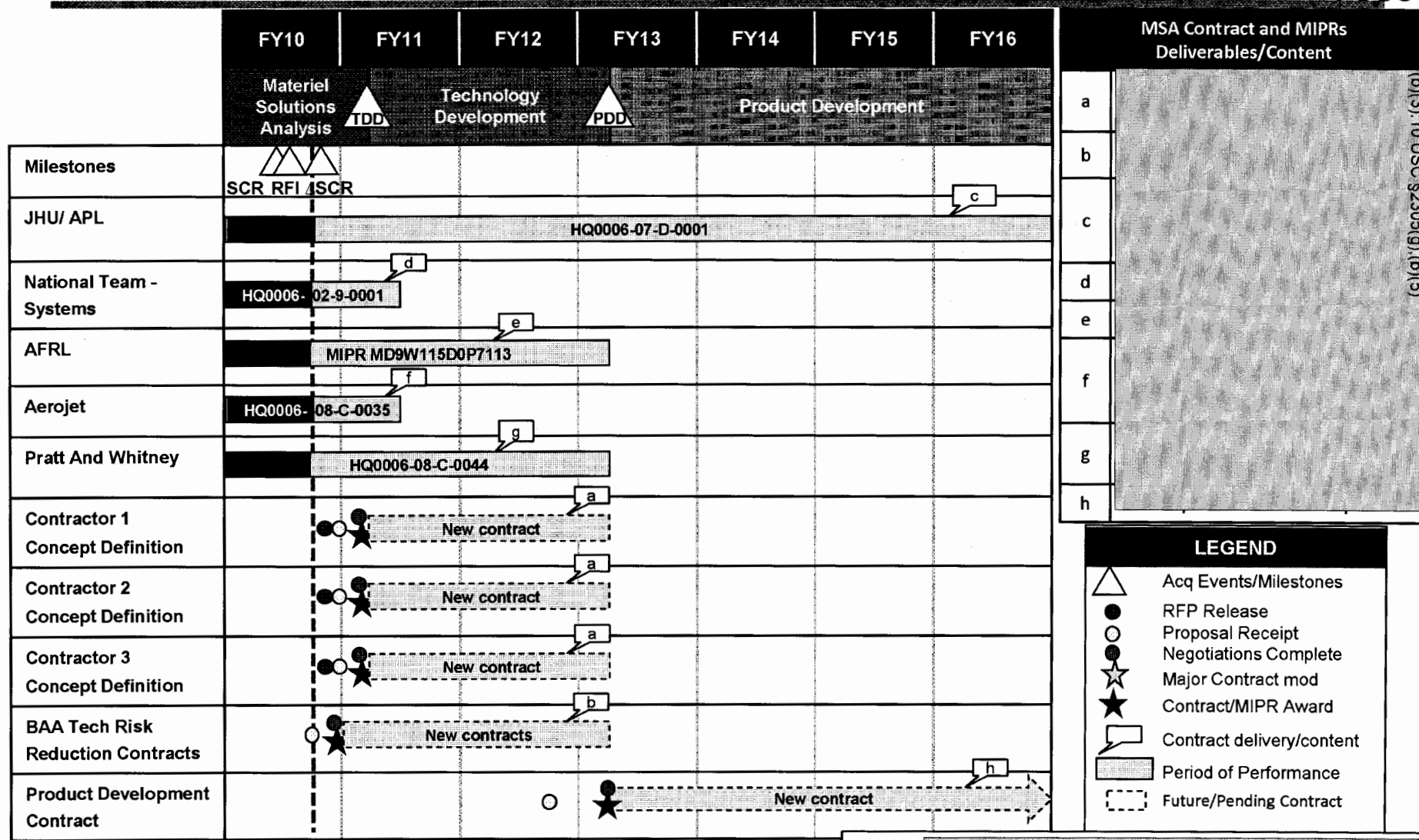


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Contracts Plan

SM-3 IIB – Materiel Solutions Analysis Contracts Plan (U)

FOUO



LEGEND

- Acq Events/Milestones
- RFP Release
- Proposal Receipt
- Negotiations Complete
- Major Contract mod
- Contract/MIPR Award
- Contract delivery/content
- Period of Performance
- Future/Pending Contract

(b)(3); 10 USC §2305(g), (b)(5)

(b)(6)

Time Now

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Approved



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Exit Criteria

SM-3 IIB Exit Criteria from Materiel Solution Analysis Phase (U)

~~FOUO~~

Exit Criteria	Baseline Component	Required For Technology Development Decision
1) Define an operational concept		
1 a) Capability Needs Document developed	Operational	G
2) Identify competitive alternative materiel solutions		
2 a) Alternatives available at System Concept Review	Technical	G
3) Establish current critical technology maturity		
3 a) Results of Request For Information from Industry and experts across the field available at System Concept Review	Technical	G
4) Adequate funding for technology developments		
4 a) Approved PB11 budget	Resource	G

~~FOUO~~

Risk to Execution
Low
Medium
High

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