



Multiple Kill Vehicle

MISSILE DEFENSE DIVISION

NATIONAL DEFENSE INDUSTRY ASSOCIATION

May 24, 2006

**Richard Matlock
Program Director**



MISSION



Multiple Kill Vehicle

- Dramatically Alter The Statistical Probability Of Kill In Favor Of The Defender By Engaging Midcourse Threat Clusters With Multiple Kill Vehicles



PROGRAM DESCRIPTION

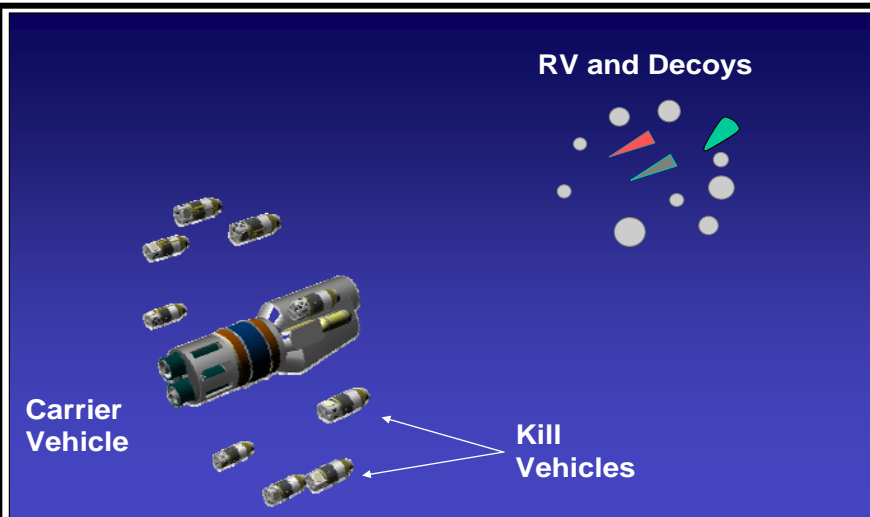
Multiple Kill Vehicle

- Transform Technology Development Program To System Acquisition Development Program
- Integrate MKV Payload System Within the Ballistic Missile Defense System
- Focus on Block 12/14 Insertion Goal
- Gives New Capability to BMDS Interceptors in the Mid-Course Phase



PLANNED ACCOMPLISHMENTS

Multiple Kill Vehicle



Program Accomplishments

- Completed First Cycle of System Design Trades
- Tested Solid Divert Propulsion Components
- Switched to Proven Liquid Propulsion System to Reduce Schedule Risk
- Installed Pathfinder Seeker in Lab
- Completed Seeker Image Stabilization Testing

FY06/07 Planned Accomplishments

- FY06**
 - Integrate Engineering Trades with BMDS Architecture Trades
 - Build on Successful Liquid Propulsion Testing
 - Expand Seeker Laboratory Testing
- FY07**
 - Refine Carrier Vehicle Trades
 - Allocate Missile Defense System Functional and Performance Requirements to Multiple Kill Vehicle System Components
 - Verify Component Design

<u>Knowledge Points</u>	<u>Commitment Date</u>
Kill Vehicle LDACS Divert Thruster Test	July 2006
Carrier Vehicle DACS Concept	July 2006



INTEGRATION INTO THE BMDS

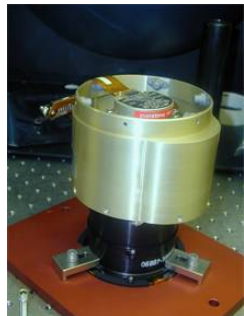
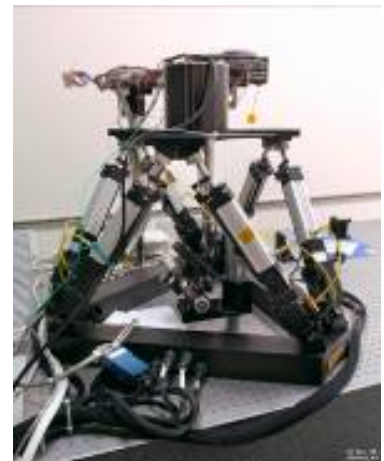
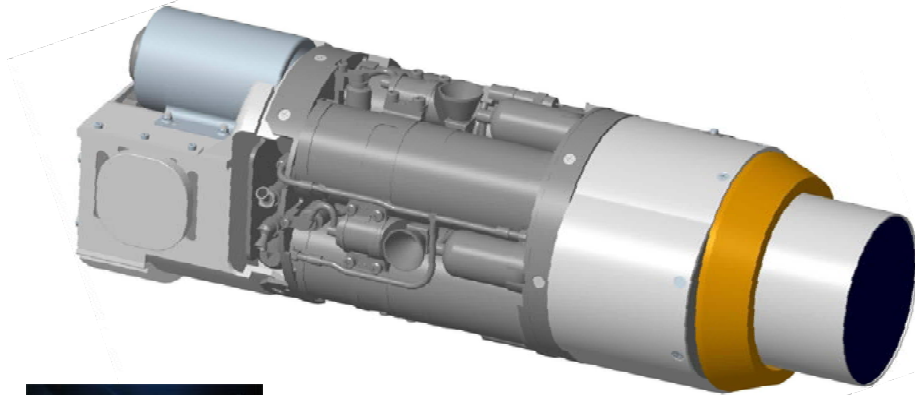
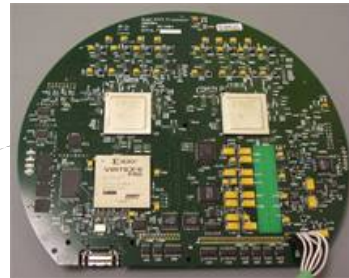
Multiple Kill Vehicle

- **Multiple Kill Vehicle is a force multiplier for the warfighter**
 - **Transforms a single interceptor into the capability for multiple engagement opportunities**
 - **Improves the performance of the BMDS against ICBMs and IRBMs in the midcourse phase of flight**
- **MKV will be available for integration onto multiple BMDS booster vehicles**
 - **GMD OBV and BV+**
 - **KEI booster**
 - **Aegis BMD SM-3 Block IIA**



KILL VEHICLE COMPONENT PROGRESS

Multiple Kill Vehicle





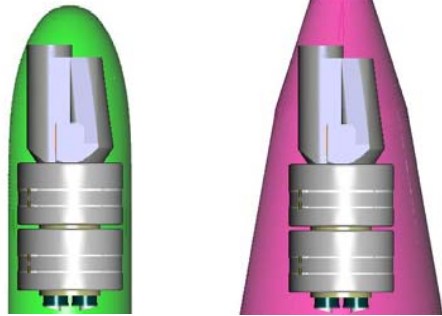
MULTIPLE BASING MODES

Multiple Kill Vehicle

Ground-based Interceptor

BV+

OBV



STANDARD Missile-3

SM-3



Kinetic Energy Interceptor

KEI



Significant Basing and Operational Flexibility



FOCUS ACTIONS – SYSTEMS ENGINEERING



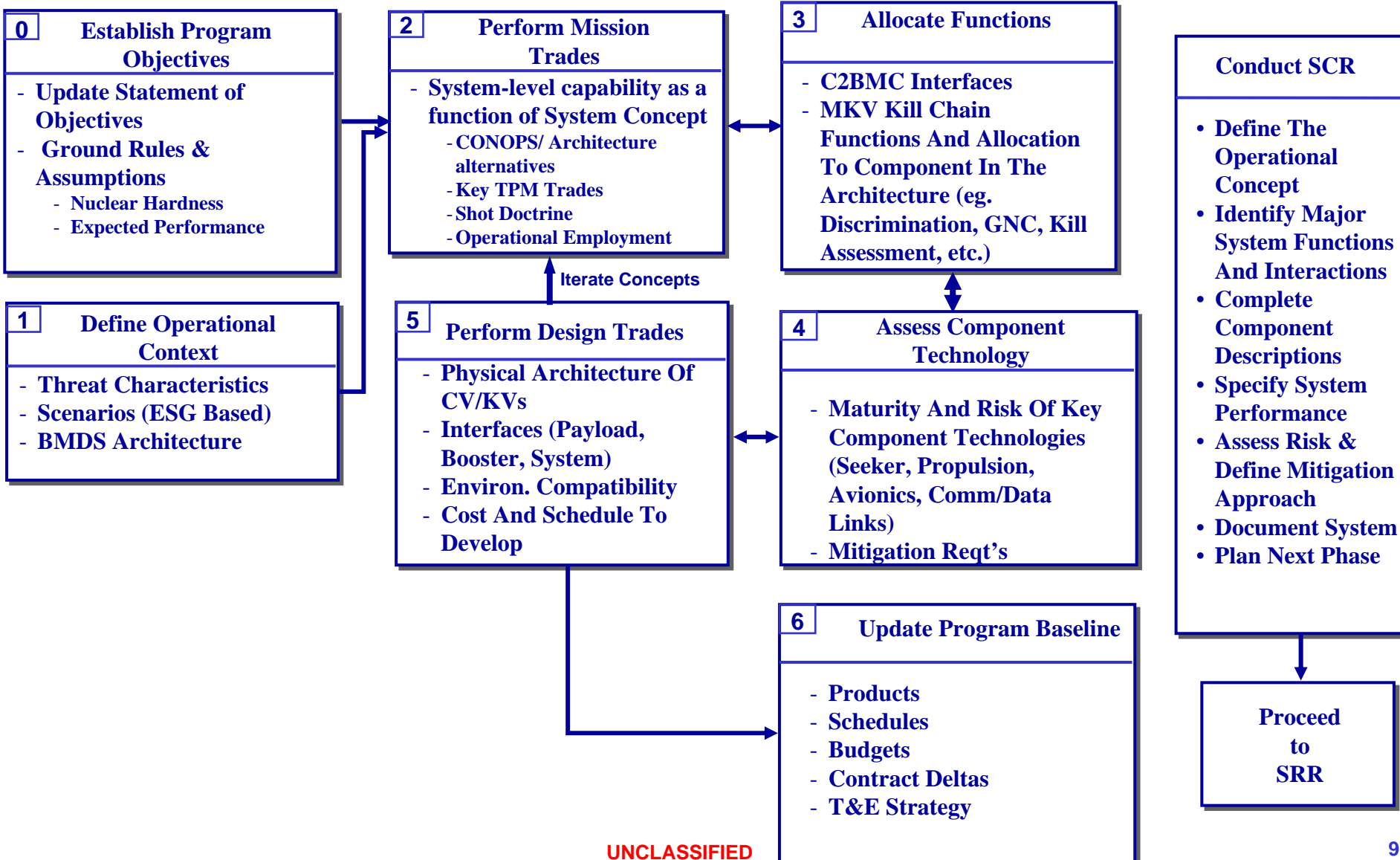
Multiple Kill Vehicle

- **With DE, BC, Lockheed Martin, GM, KI, AB and Other MDA Directorates, Initiate System Engineering To Integrate Into The Ballistic Missile Defense System As A Payload Product**
 - **Designate A Block 12-14 Capability**
 - **Review And Align Threat With Block**
 - **Generate Necessary Engineering Products For Trades**
 - **Establish Relationships With Candidate MKV System Users**
 - **Perform Critical Trades To Balance Development Risk, Schedule And Performance**
- **Convene a System Concept Review – Summer 06**



TASK FLOW TO SYSTEM CONCEPT REVIEW

Multiple Kill Vehicle



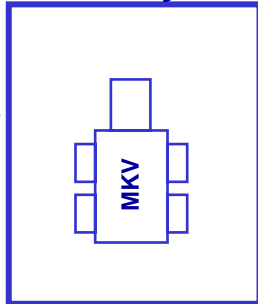


MKV SYSTEM CONTEXT DIAGRAM ENDGAME

Multiple Kill Vehicle

- D2 – In-flight communications (IFTUs, TOM)
- D3 – GPS-aided navigation
- D4 – Target acquisition, track & discrimination
- E4 – Space environment

MKV Payload



Space Environment



- ↔ Data and Electrical (D)
- ↔ Physical (P)
- ↔ Environmental (E)

BMDS C2BMC



SYSTEM CONCEPT REVIEW ENTRANCE CRITERIA

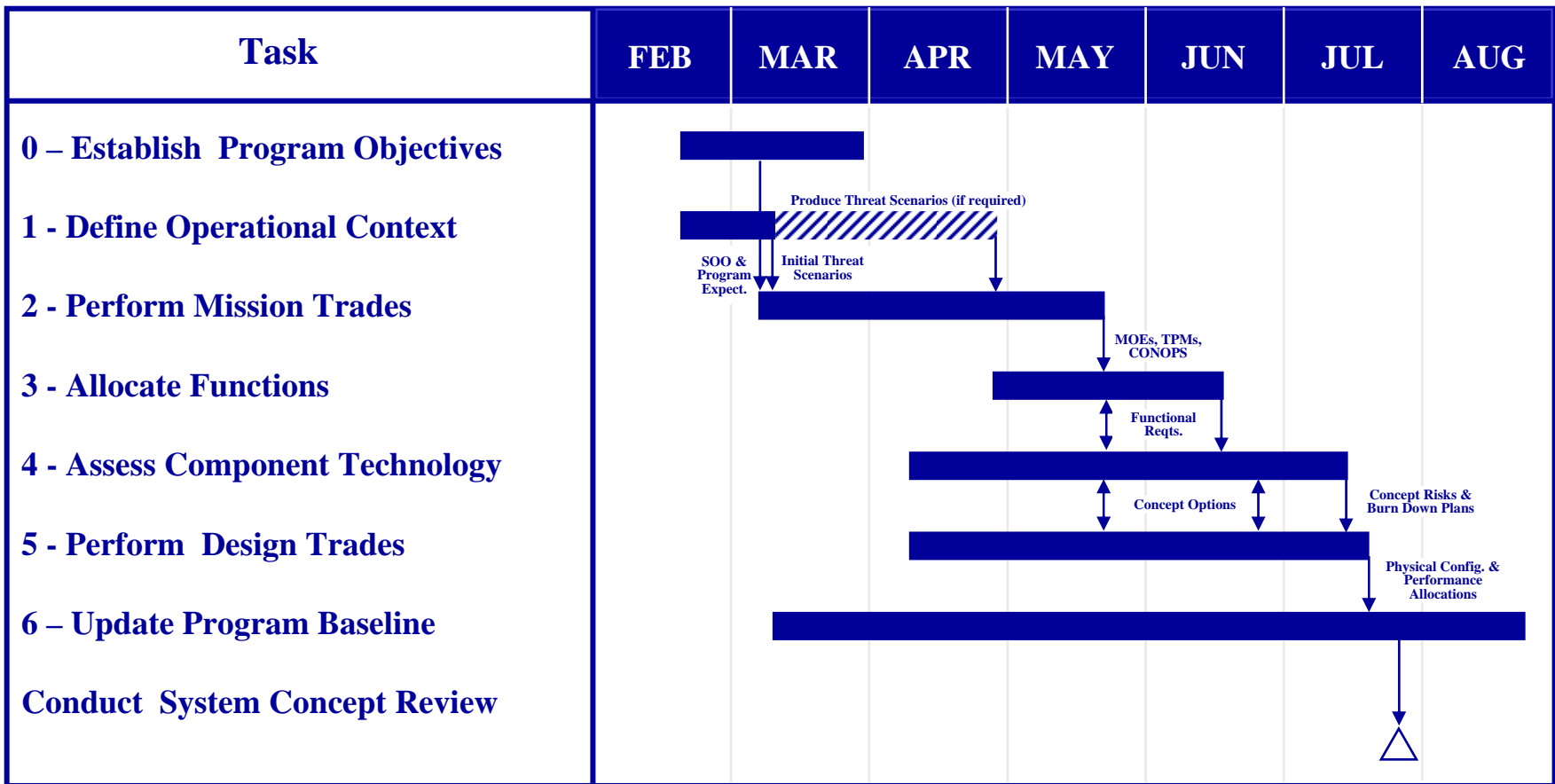
Multiple Kill Vehicle

- **Define the Operational Concept**
 - **Capability Objectives**
 - **Applicable Theaters & Scenarios**
 - **Concept For BMDS Employment**
 - **Threat and Environment**
 - **System Constraints**
- **Identify Major System Functions and Interactions**
 - **MKV System Context Diagram**
 - **Engagement Sequence Groups and Kill-Chain Functions**
 - **Major Configuration Items**
 - **Interface Definition**
- **Complete Component Descriptions**
 - **Physical Description Including Technology Maturity**
 - **Functional Allocations to Components**
- **Specify System Performance**
 - **Identify Technical Performance Metrics**
- **Assess Risk & Define Mitigation Approach**
- **Document System**
 - **Specification Tree**
 - **Component Requirements**
 - **Trade Study Report**
 - **Concept Description**
- **Plan for Next Phase**



PLAN OF ACTION AND MILESTONES

Multiple Kill Vehicle





Multiple Kill Vehicle

