

BMDO RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE February 2000		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603876C Threat and Countermeasures				PROJECT 3270		
COST (In Thousands)		FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
3270	Threat and Countermeasures Program	23258	19343	22621	22379	20670	21087	21507	Continuing	Continuing

A. Mission Description and Budget Item Justification

Intelligence Directorate. The BMDO Directorate of Intelligence defines potential adversary military force missile threats. To accomplish this mission, BMDO has a threat definition program, which is based on intelligence community projections and is traceable to quantifiable analysis. This project produces capstone threat and countermeasure documentation to ensure consistent technical threat definitions across all the Services. It does not duplicate Service-unique activities. The program consists of three primary component tasks: Intelligence Threat, Threat Systems Engineering, and Threat Applications; and a secondary task providing funds for an Executing Agent at USASMDC to support the Intelligence Threat task.

Intelligence Threat Task. The purpose of this task is to provide an Intelligence Community-Validated TMD and NMD threat description. The threat is divided into four major categories under this task: Operational Threat Environment, Targets, System Specific Threats (SST), and Reactive Threats. The Operational Threat Environment includes assessments of the operational and technological environments and projects the effects of developments and trends on TMD and NMD mission capability. The Targets category includes a projection of foreign missile systems and countermeasures that enhance their performance. This includes force structure, performance characteristics, and sample signatures. SST addresses threats to NMD and the TMD "family of systems" including reconnaissance, surveillance, and target acquisition; lethal and non-lethal threats; and regional integrated SST assessments. The Reactive Threats category includes those that an adversary may develop as a result of deployment of NMD and the TMD "family of systems."

Threat Applications Task. The accurate specification and characterization of ballistic missiles and the appropriate development and integration of scenarios using these characterizations are critical to the analysis of alternative ballistic missile architectures, the performance assessments of potential technology applications, and the operational performance evaluations of candidate designs. This task provides baseline and excursion scenario descriptions in documentary and digital form for use in analysis of BMD architectures and operational effectiveness. These descriptions are the only approved threat employment portrayals authorized for acceptable BMDO analysis. This task:

- Identifies user needs for threat scenario descriptions.
- Identifies analyses needed to fully specify and characterize the threat missile systems, penetration aids, tactics, etc., and ensures the analyses are accomplished.
- Provides the analysis results to all interested agencies for review and comment.
- Addresses critical threat issues, which arise during the analysis process.
- Ensures all supporting agencies' views on threat issues are fully aired.
- Reviews, approves, produces, and distributes all threat scenario descriptions.
- Produces threat computer digital media (threat tapes) and supporting documentation for use by the development and acquisition communities.

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<p>Threat Systems Engineering Task. The BMDO Threat Systems Engineering Program assists TMD and NMD acquisition program offices in developing ballistic missile defense systems that are robust to potential countermeasures and are practical and within the means of anticipated adversaries. Included in this mission are Countermeasures Integration Program (CMIP) support to the TMD and NMD threat development process and advance warning to BMDO system designers. The BMDO CMIP reviews TMD and NMD systems for susceptibilities and identifies potential countermeasures, determines credibility through analyses and tests, characterizes credible countermeasures by providing designs and performance parameters, informs intelligence and system threat developers of potential countermeasures, informs TMD and NMD system designers with advance warning of potential countermeasures, and assists TMD and NMD system designers in developing counter-countermeasures. Providing vulnerability and susceptibility information, or "threat risk assessments", to the system designers early enables them to build robustness into their designs during the early stages of the system development process, a cost-effective means for providing a flexible high-performance design. The program takes a "rest-of-world" perspective in developing credible, potential countermeasures.</p>		
FY 1999 Accomplishments:		
•	11318	Over 50 intelligence studies tasked to Intelligence Community agencies by BMDO were completed during 1999. These studies included The National Missile Defense and Theater Missile Defense System Threat Assessment Reports (STARs) that form the basic threat documentation for BMDO programs. In addition, numerous intelligence databases including the Missile Design Database (MDDDB) and the Ballistic Missile Reference Document (BMRD), and threat system models describing missile operations were updated with new intelligence data to respond to BMDO program analytical needs for detailed parametric specifications.
•	1635	Three major campaign scenarios were under production during FY99. These scenarios are detailed descriptions of future protracted conflicts in which Red missile and air forces are employed against Blue missile defenses. This provides a context for analysis and evaluation of defense force capabilities, architectures and systems. The 2003 Arabian Gulf Campaign Scenario (AGCS) and the 2010 AGCS were complete and distributed to BMDO program elements. Work was started on the 2010 Northeast Asia Campaign Scenario that will be completed in FY00. In addition, numerous scenario vignettes, engineering trajectories and engagement scenarios were produced to support NMD Integrated Ground Tests (IGTs), JTAMDO System Integration (SI) analysis, directed energy weapons (DEW) engineering studies, and System Requirements Documentation (SRDs).
•	10305	Threat Systems Engineering Task: Two major Threat Risk Assessments were completed in FY99. These two assessments, against SBIRs and the United Kingdom's projected missile defense systems identified potential threats and countermeasures, their probability of being produced, and their impact on the defense systems. Two major documents were produced: the Countermeasures Taxonomy and the Countermeasures Compendium. These documents serve as reference documents to track and describe countermeasures of interest to BMDO. A number of CHOP Skunkworks missions were closed out or initiated during the year along with a hardware fabrication effort for the Atmospheric Interceptor Technology (AIT) program. The Missile Feasibility Assessment was also completed.
Total	23258	
FY 2000 Planned Program:		
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- 6718 FY2000 will see the production of the Theater Air and Missile Defense and National Missile Defense STARs along with 22 intelligence studies/analyses/assessments. These studies will document threat system specifications, characterizations, signatures, operations, and employment tactics and strategies. Threat data bases will updated and numerous models will be modified to better evaluate threat system engagements.
 - 1852 Threat Applications Task: Production work will continue on the 2010 Northeast Asia Campaign Scenario and work will begin on a new campaign scenario selected from the Defense Planning Guidance document. Threat scenario modeling tools will be upgraded to keep pace with new threat system descriptions and the needs of the modeling and simulation community. Scenario and intelligence support will be provided to BMDO wargaming and exercise efforts at he Joint National Test Facility.
 - 7740 Threat Systems Engineering Task: Establish and maintain common engineering threat definition across the BMD architecture. Create and maintain a Ballistic Missile Defense (BMD) "Design-to-Threat". Revitalize and operate a Red Engineering Team that takes the role of an enemy striving for an effective ballistic missile attack on targets defended by US BMD systems. Provide Threat Systems Engineering Support to BMD architecture development and evolution. Conduct studies and analyses of proposed BMD architecture(s), system(s), and component designs from an adversary's point of view. Expand and/or develop countermeasure designs to an engineering detail level sufficient to support scenario development, modeling, simulation, and analysis. Conduct hardware development, experiments, and/or ground-tests to quantify the level of difficulty in creating countermeasures, quantify countermeasure performance, and provide test data to support systems analyses.
 - 3033 Comprehensive Advanced Radar Task: A multiple project effort to address advanced threats and develop mitigation techniques through the development of algorithms, operational procedures and hardware.
- Total 19343

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- FY 2001 Planned Program:**
- 7440 Intelligence Threat Task: Provide Capstone STAR, specialty threats, targets analysis, operational threat environment intelligence assessments, management, and planning support
 - 2218 Threat Applications Task: Continue development of threat system characterizations and scenario descriptions in response to the analysis needs of the system/element developers. Upgrade the threat modeling capability and produce digital media and supporting documentation through the JNTF. Develop scenarios depicting threat systems employed in theater/strategic environments.
 - 12911 Threat Systems Engineering Task: Perform TMD/NMD CM Red/Blue activities and counter-countermeasure parametric studies and TMD/NMD CM technical experiments and evaluations, and threat risk assessments. Support Countermeasures Hands-On Program (CHOP) "Skunkworks" teams in conducting CM concept, design, fabrication, and tests. Conduct non-technical analysis, oversight, and database management.
 - 52 Executing Agent for Intelligence Threat task.
- Total 22621

Acquisition Strategy: Funding is provided to executing agents who accomplish tasks under existing contracts via Military Interdepartmental Purchase Requests (MIPR); Scientific, Engineering, and Technical Assistance (SETA) contracts; and Federally Funded Research and Development Centers (FFRDCs) contracts.

B. Program Change Summary	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
Previous President's Budget (<u>FY 2000</u> PB)	23263	16497	22763
Congressional Adujustment		3000	
Appropriated Value		19497	
a. OSD Inflation Adjustment	-203	-154	
b. Internal Reprogramming	198		
Adjustments to Budget Years Since <u>FY 2000</u> PB			-142
Current Budget Submit (<u>FY 2001</u>)	23258	19343	22621

Change Summary Explanation:
 Funding: Funding adjustments made to support revisions in TMD core program schedules and requirements.
 Schedule: None
 Technical: None

C. Other Program Funding Summary (\$In Thousands)	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>To</u> <u>Compl</u>	<u>Total</u> <u>Cost</u>
2407 NMD Program, PE 0603871C	3000								
Missile Feasibility Assessment (MFA) 0603871C	2421								
1155 Technology- Research&Engr, PE 0603874C	200								

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	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Skunkworks Mission #12								X								
Skunkworks Mission #14								X								
Skunkworks Mission #15									X							
NMD STAR				X			X				X				X	
TMD Capstone STAR			X				X				X				X	
Threat Risk Assessment								X				X				X
NEA III Scenario							X									
AGCS 2010 Scenario					X						X					