



**Targets and Countermeasures (TC)
Next Generation Threat Front Ends
Industry Day Event
TC Mission Brief**

Presented at:

Industry Day Event

Date: June 11, 2019

Presented by:

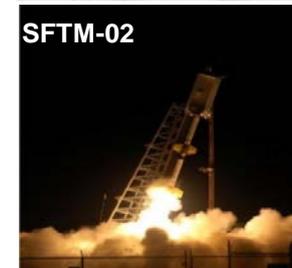
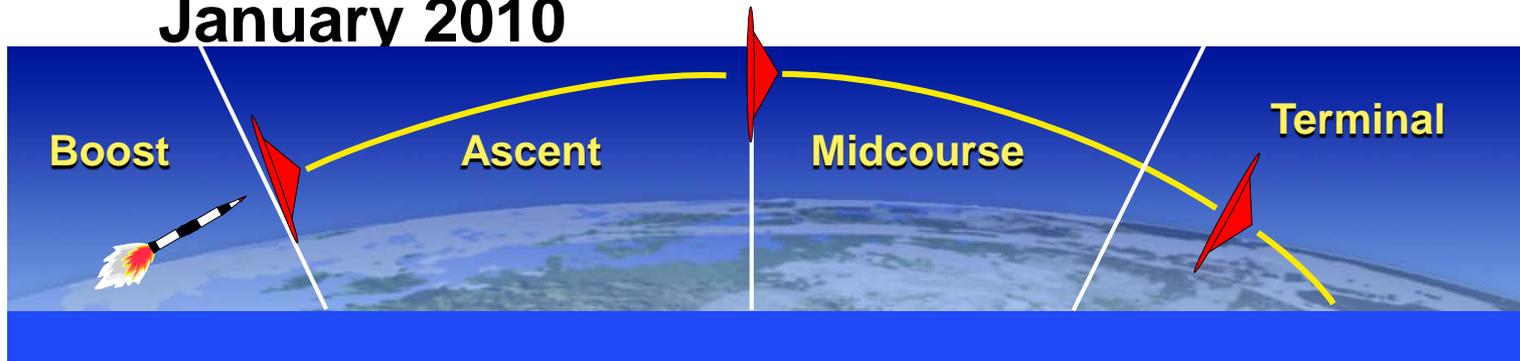
**Mr. Stan Thomas
Program Director**



Targets and Countermeasures

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- Develop quality, threat representative, cost-effective target solutions with systematic rigor enabling the Ballistic Missile Defense System (BMDS) to test system performance and demonstrate its effectiveness in threat relevant environments
- **97.5% Success Rate; 78 out of 80 successful targets launched since January 2010**





Why Targets and Countermeasures?

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Bottom Line Up:

1. **MDA develops and deploys the BMDS to defend the US and allies from ballistic missile attacks**
2. **MDA conducts realistic flight tests to validate BMDS modeling and simulations, and gather data to support acquisition milestones and capability assessments**
3. **TC provides threat-representative targets and countermeasures (aka Associated Objects) for MDA flight tests**

CHARTING THE COURSE FOR OUR FUTURE

MISSION:
To develop and deploy a layered BMDS to defend the United States, its deployed forces, allies, and friends from ballistic missile attacks of all ranges in all phases of flight.

VISION:
Earn our Nation's confidence in developing effective homeland and regional missile defense.

CORE VALUES

- **RESPECT**
- Mutual for each other with dignity
- **TEAMWORK**
- We accomplish more helping each other than as individuals
- **DEDICATION**
- To our nation and our missile defense mission
- **INTEGRITY**
- In all things, all the time
- **PROFESSIONALISM**
- Strive for it in all you do

MDA GOALS

1. Support the warfighter
2. Prove the power of missile defense through testing
3. Continue development and fielding of the integrated BMDS for Homeland and Regional Defense
4. Team approach to Agency operations
5. Optimize available resources
6. Inspire professional excellence
7. Foster a supportive environment for a diverse and professional workforce
8. Implement National Security Strategy through international cooperation
9. Capitalize on the creativity and innovation of the Nation's universities and small business community

Flight tests define our legitimacy.
Delivery of capability defines our legacy.



Today's Ballistic Missile Defense System

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C2BMC Command and Control, Battle Management and Communications

NMCC

USSTRATCOM

USNORTHCOM

USINDOPACOM

USEUCOM

USCENTCOM

BOOST / ASCENT
Defense Segment



Aegis
Ballistic Missile Defense

SM-3
Standard Missile-3



MIDCOURSE
Defense Segment

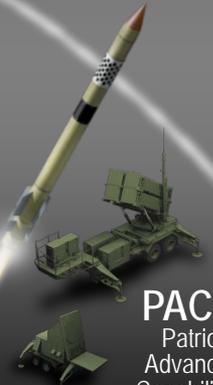
GBI
Ground-Based Interceptor

TERMINAL
Defense Segment



Aegis
Sea-Based Terminal

THAAD
Terminal High
Altitude Area Defense



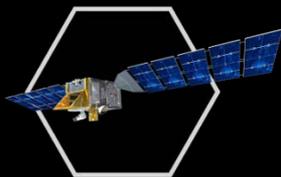
PAC-3
Patriot
Advanced
Capability-3

The System
Of Elements

Aegis Ashore



Sensors



Satellite Surveillance



Forward-Based Radar



Upgraded Early
Warning Radar



AEGIS BMD
SPY Radar



Sea-Based
X-Band Radar



The Increasing Ballistic Missile Threat

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North Korea: Commitment to long-range missile technology



Road-mobile ICBM (> 5,500 km) shown in 2015



8 IRBM (3,500-5,500) km Launches in 2016



3 Sea-Launched Ballistic Missile launches in 2016



Solid-propellant SLBM variant February 2017

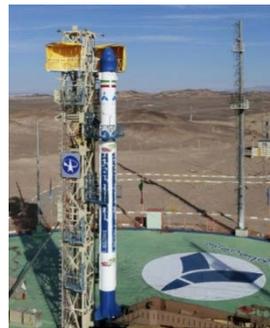
Iran: Developing advanced capabilities



Iranian Simorgh Space Launch Vehicle 2015



Iranian Emad MRBM 2016



Iranian Safir SLV February 2015

Emerging Threat



Hypersonic Glide Vehicle

Increasing Capability At All Ranges – Maneuvering Threats



Emulating the Threat

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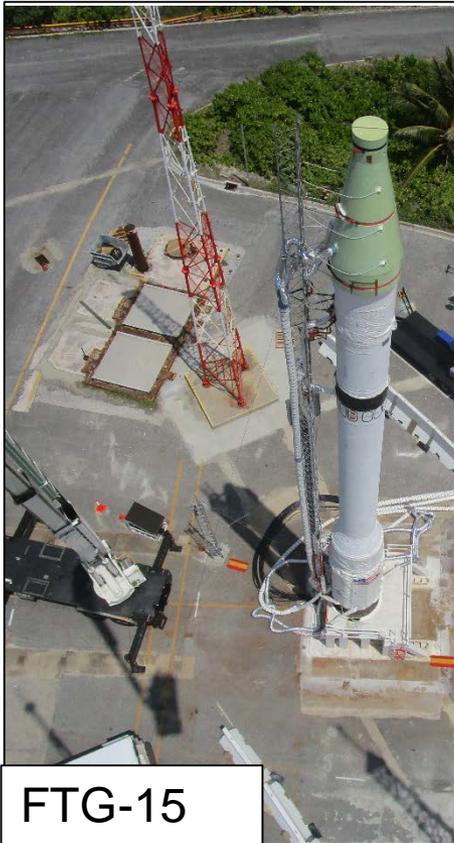
- **The BMDS requires targets that Emulate the Threat**



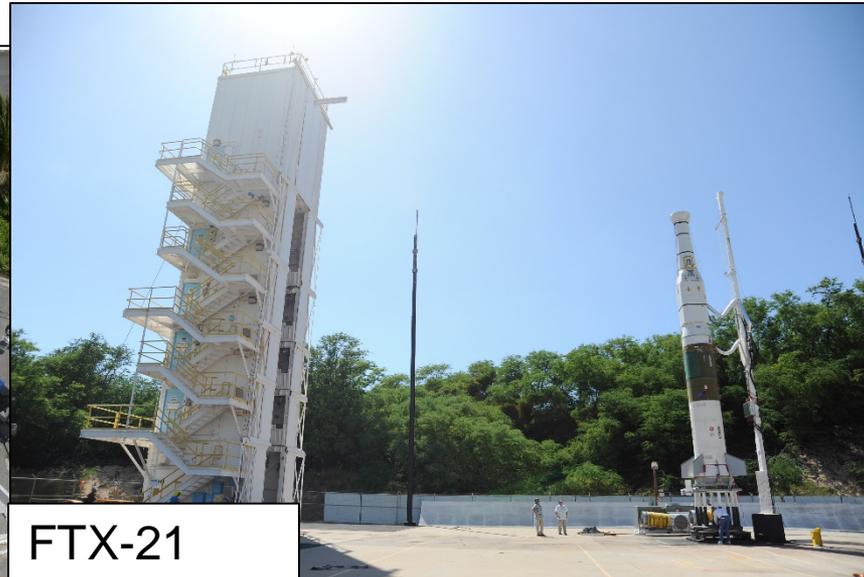


Target Photos

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FTG-15



FTX-21



FTO-01



FTX-19



Front End Background

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- ◆ TC oversees design, development, production, fielding, and sustainment of threats for the Ballistic Missile Defense System (BMDS) testing representative, reliable, and cost-effective ballistic missile targets and countermeasures
- ◆ The Target System Baseline includes target classes of ICBMs, IRBMs, MRBMs, and SRBMs
- ◆ The mission specific target will include a specific target class and additional functionality within the Front End Section and Associated Objects
- ◆ “Front End/Payload/Kit” is henceforth known as “Front End;” Front End contains Kits for required enhanced capabilities





Program Breakdown

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TARGETS AND COUNTERMEASURES PROGRAM

IRBM & ICBM Targets



PM – Angela Holmes

- ICBM Multiple Configuration Types
- IRBM Multiple Configuration Types
- MRBM T3c2

Prime Contractor



MRBM Targets



PM – Mike Bruno

- MRBM Multiple Configuration Types
- MBRVs
- Countermeasures
- Advanced Target

Prime Contractors



Subscale Targets



PM – Dave Goodall

- SRBM / MRBM
- *NEW: T4

Prime Contractor



*Competition

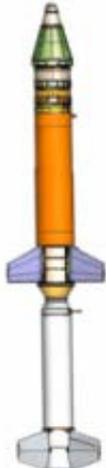
PROGRAM SUPPORT ACTIVITIES

- | | | | |
|---|--|---|--|
| <ul style="list-style-type: none"> • Motor Inventory Sustainment • Service Life Extensions • Motor Demil | <ul style="list-style-type: none"> • Data Products Lab • Systems Engineering • Quality, Safety, and Mission Assurance | <ul style="list-style-type: none"> • Range Coordination • MILAIR Coordination • Component Testing • Flight Test Execution | <ul style="list-style-type: none"> • Personnel Mgmt • Acq/Contract Mgmt • Financial Mgmt • Facilities Mgmt |
|---|--|---|--|



Evolving Target Portfolio

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Class	SRBM		MRBM			IRBM	ICBM	
-----NOT DRAWN TO SCALE-----								
						 <i>Under Development</i>		
-----NOT DRAWN TO SCALE-----								
Target	SRBM T4-G	SRBM T4-B	MRBM T4-E	MRBM T3c2	MRBM T1/T2	MRBM T5	IRBM T1/T2	ICBM T1/T2
Front End	MBRV-G	MBRV-B	MBRV-E	MBRV-5	MBRV-7	MBRV-9	MBRV-2 MBRV-7 MBRV-8	MBRV-2 MBRV-8 MBRV-E
Stage 3	-	-	Oriole GEM-22	-	-	-	-	-
Stage 2	TVC Oriole	Oriole GEM-22	Terrier MK-70	M57	SR19	eSR19	Orion 50 XLT	Orion 50 XLT
Stage 1	Talos MK-11	Terrier MK-70	Terrier MK-70	C4	SR19	eSR19	Orion 50-S XLT	Orion 50-S XLT
Stage 0	-	-	-	-	-	-	-	C4
Launch Method	Ground	Ground	Ground	Ground	Air Launch	Air Launch	Air Launch	Ground
Launcher	Rail	Rail	Rail	Launch Stool	C-17	C-17	C-17	Launch Stand



Program Description Ranges and Forward Staging Areas

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Program Director's High Level Acquisition Objectives

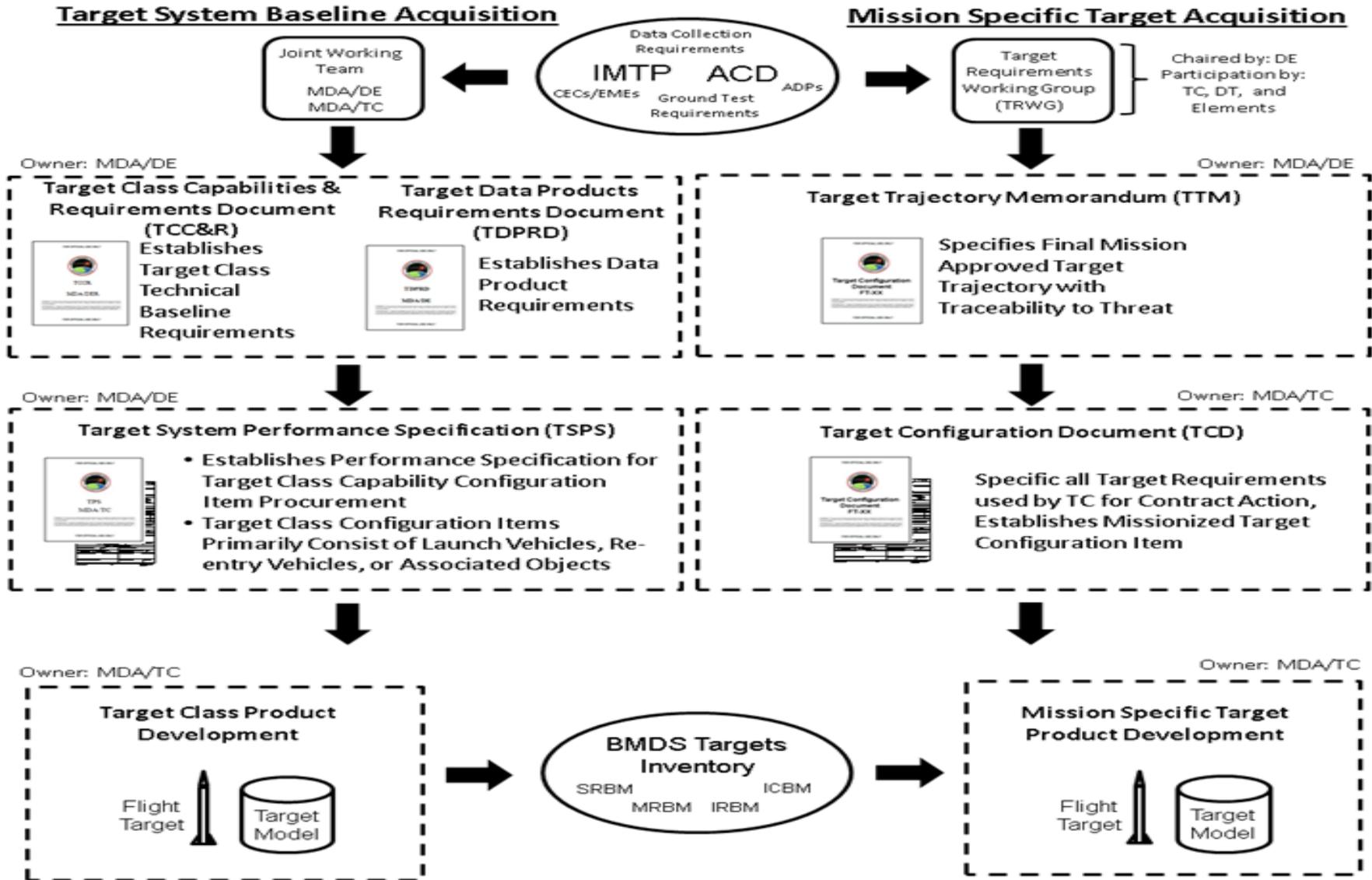
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- ◆ **Meet customers' performance, schedule, and service needs to counter an evolving threat**
- ◆ **Flexible/agile contract structure to quickly turn on reconfiguring/assembling evolving threat solutions to meet changing threat requirements**
- ◆ **Seek common internal components, multiple, adaptable, shapes, and kits that can be rapidly configured to represent evolving threats**
- ◆ **Reduce cost per threat solutions as well as contain costs and risks**
- ◆ **Incentivize Performance, Mission Assurance, Collaboration, and Design Innovation**
- ◆ **Sustain continuity of service and infrastructure to deliver relevant threat solutions and reliable targets that credibly demonstrate and validate BMDS defensive capabilities**
- ◆ **Continue communications and foster relationships that preserves and expands the industrial base to incorporate advanced or evolving threat capabilities for future deliveries**



Acquiring Targets/Threat Solutions

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Other Acquisition Consideration

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- ◆ **Expand and sustain the industrial base**
- ◆ **Collaboration with Industry builds good Market Research and encourages competition, innovation and best value**
- ◆ **TC Supports Small Business Utilization**
- ◆ **Enforce Cybersecurity, Security, and protection of information**
- ◆ **All TC Solicitations/Contracts include MDA Assurance Provisions (MAP)/MDA Parts, Materials, and Processes Mission Assurance Plan (PMAP)**
- ◆ **Incentives will be consistent with scope, risks, objectives, and contract structure**
- ◆ **Data**
 - **Tailoring data based on need, value, and use for multiple purposes**
 - **Acquire no more restrictive than Government Purpose Rights (GPR)**



Contract Type Considerations

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- **Task**
 - **Provide most appropriate and timely contractual solutions for procurement of real-world, threat-representative ballistic missile target vehicles and countermeasure articles to accommodate the successful testing of the BMDS**
- **TC Portfolio includes managing multiple contract**
- **Path Ahead: Look for a contract structure that supports uncertainty in future requirements and threat changes, reduces unneeded excess/quantities, and lessens cost growth due to programmatic and IMTP fluctuations**
- **Need Contract Flexibility for:**
 - **Ability to accommodate quick turn contract actions/changes**
 - **BMDS IMTP schedule changes**
 - **Specific test configuration changes**
 - **Test Performance Parameters and quantities are clearly defined**
 - **Incorporate advanced threat solutions; etc.**
- **Allows for long-term relationship with industry partners/suppliers**



Challenges/Opportunities

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- Keeping up with evolving and advance threats
- Design/Development/Qualification Process
- Solution may be affected by Intermediate-Range Nuclear Force (INF) Treaty
- Quick turn changes to deliver Threat Representative complex solutions
- Long Leads for advanced materials
- Manufacturing capabilities and forgings
- Extensible architecture to incorporate enhancements
- Quality/Mission Assurance processes
- Integration



THANK YOU