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JOINT PROGRAM EXECUTIVE OFFICE ARMAMENTS & AMMUNITION



Presented to:
**Future Forces Conference
Guest Speaker Panel**

Presented by:
Mr. Chris Grassano
Deputy Joint Program Executive Officer
Armaments & Ammunition

20 September 2022



JPEO Armaments & Ammunition Video





Joint Program Executive Office Armaments & Ammunition



COL Leon
Rogers

Project Manager Combat Ammunition Systems Indirect Fire Munitions and Mortar Weapon Systems

- Long Range Precision Fires
- Cannon Delivered Area Effects Munitions
- Mortar Weapon Systems



COL Russell
Hoff

Project Manager Close Combat Systems Terrain Shaping Obstacles, Close Combat Munitions, Protection and Support Systems

- Interim Top Attack Munition
- Individual Shoulder Launched Munition
- Countermeasure Flares/Decoys



COL Paul
Alessio

Project Manager Maneuver Ammunition Systems

- ### Direct Fire Munitions
- Small, Medium and Large Caliber
 - Special Ammo & Weapon Systems



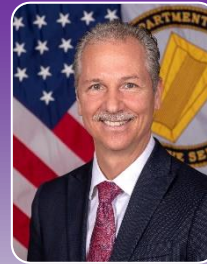
Mr. Matthew
Zimmerman

Project Director Joint Services

- Ammunition Industrial Base
- SMCA Integration
- Demilitarization
- Technology and Prototyping



JPEO A&A
BG John Reim



DJPEO A&A
Mr. Chris Grassano SES

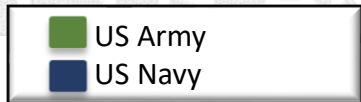


APEO
International
Mr. Thomas
Coradeschi



Dir Talent
Management
Mr. Keith Gooding

Mission:
Develop, procure and field lethal armaments and ammunition providing Joint Warfighters and Allied Partners overmatch capabilities.



Mr. Ben
Harris

Chief of Staff

- Human Resources
- Security / Foreign Disclosure
- Acquisition Processes
- Audit Readiness
- Business Management
- Information Technology



Mr. Chris
Hatch

Acting Program Manager Towed Artillery Systems

Joint Artillery & Survey

- M777A2 Lightweight 155mm Howitzer
- M119A3 105mm Howitzer
- Survey Systems
- Next Generation Howitzer



CAPT Brian
Schorn USN

Project Director Joint Bombs

- Air Force and Navy Bombs
- Navy Deck Gun Ammo
- Energetics / Cartridge Actuated Device / Propellant Actuated Device



Mr. Eugene
Conner

Director for Integration

- Science and Technology
- Systems Integration
- Architectures and Standards
- Ammunition Logistics R&D

Single Manager for Conventional Ammunition



JPEO Armaments & Ammunition Vision, Mission & Priorities

- **Vision:** Innovative and empowered Teams rapidly fielding dominating capabilities.
- **Mission:** Develop, procure and field lethal armaments and ammunition providing Joint Warfighters and Allied Partners overmatch capabilities.
- **Priorities:**
 - Develop Agile People, Teams and Acquisition Leaders
 - Develop and Field Overmatch Capabilities to Warfighters
 - Innovate and Operate Effectively and Efficiently
 - Modernize and Maintain Viable Strategic Capabilities to Ensure Current and Future Readiness
 - Strengthen Alliances and Establish New Partners



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Armaments and Ammunition Where We Are



- Challenging Environment
 - Tight Labor Market (Great Resignation – 2x Attrition Rate)
 - Dynamic and Difficult Supply Chains
 - Inflation
 - Minimum Sustaining Production Rates (Priority on Modernization)
- Compounding Challenges
 - Step Function Demand Increase
 - ✓ Ukraine
 - ✓ Rebuild Inventories – Total Munitions Requirements Re-look
 - ✓ FMS Customers and SDAF Replenishment
 - ✓ Potential Critical Munitions Fund
 - Expanding Capacity and Establishing New Sources
 - ✓ Attracting, Training and Retaining Labor
 - ✓ Long Lead Time for Capital Equipment
 - ✓ Maintaining Excess Capacity; Multiple Sources Long Term

Dynamic and Challenging Environment



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Armaments and Ammunition Where We Are Going



- Modernization of Munitions
 - Longer Range (Propellants, Charges & Ballistics)
 - Precision (M-Code & Alt-Nav)
 - Lethality (Armor, Area Effects, Air-burst, Seekers)
 - Multi-use & Multi-target (AMP & IAM)
- Modernization of the Industrial Base
 - Automation and Robotics
 - Safety (Isolate and Reduce Mass Energetics)
 - Capacity Expansion and Dual Sources
 - Resilient & Sustainable Operations
 - Leverage Title III for Commercial Facilities
- Assured Munitions
 - Supply Chain Risk Management (Early & Continuous)
 - ✓ New Sources
 - ✓ Secure Sources
 - ✓ Stockpiles & Life-time Buys
 - ✓ Design Out
- Digital Engineering
 - 3D TDPs
 - Digital Thread & Digital Manufacturing
 - Physics-based Models
 - Virtual Testing



JPEO A&A is Modernizing Munitions and Industrial Base



Delivering Overmatch Capabilities to Warfighters Supporting Army Modernization Priorities

1

Long Range Precision Fires

Supported by 12 Projects, Includes:

- Enhanced Lethality
- Cannon Munitions
- 155mm HE Rocket Assist
- Extended Range
- Cannon Delivered Area Effects Munitions

2

Next Generation Combat Vehicle

Supported by 7 Projects, Includes:

- 30mm Family of Ammunition
- 50mm Multi-Mode Family of Ammunition
- 120mm Extended Line of Sight (ELOS)
- 105mm Mobile Protected Firepower

3

Future Vertical Lift

Supported by 2 Project:

- Aviation Expendable Countermeasures
- PGU28 Anti-Personnel Family of Ammunition

5

Air and Missile Defense

Supported by 2 Project:

- 30mm Multi-Mode Proximity Air Burst (MMPA)

6

Soldier Lethality

Supported by 9 Projects, Includes:

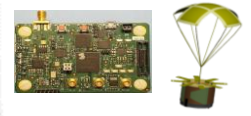
- 6.8mm Family of Ammunition
- 7.62mm Advanced Armor Piercing (ADVAP)
- Precision Sniper Rifle Ammunition

7

Assured PNT

Supported by 1 Project:

- Assured Precision Weapons and Munitions



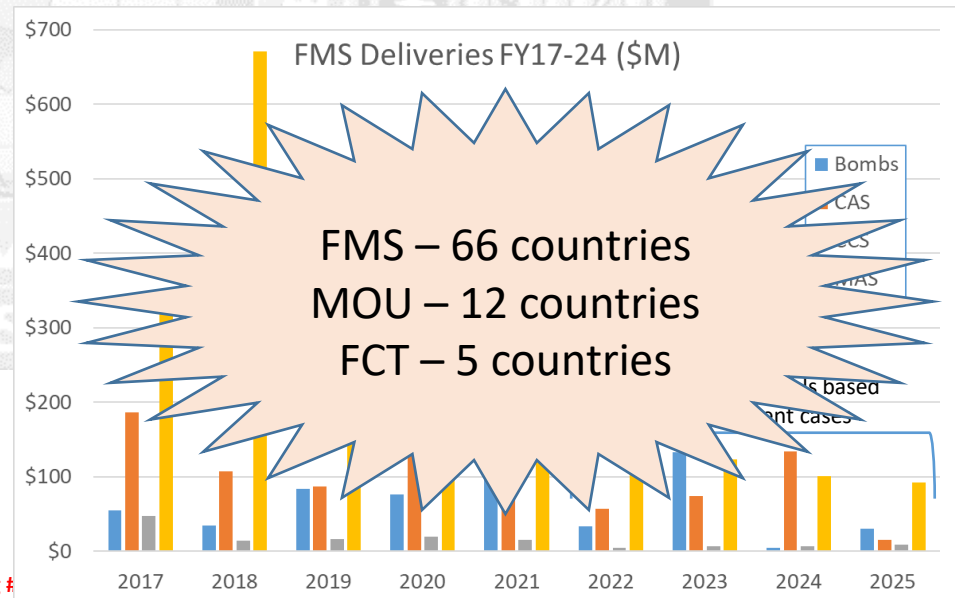
The JPEO Directly Supports Six of Eight CFTs

Status
Program of Record
Concept Dev
Requirements Dev
MidTier Acquisition

Efforts to Strengthen Alliances and Establish New Partners



- DoD Strategy is to encourage and enable partner nation security goals consistent with our national security objectives
- Key elements:
 - Cooperative R&D/Production
 - Foreign Military Sales
 - Direct Commercial Sales
 - Foreign Comparative Test
 - Interoperability / Interchangeability
 - Strategic Sourcing



Summary



- JPEO A&A is Fully Engaged Supporting our National Military Strategy
- Modernization is Maintaining Momentum
- Shaping the Industrial Base to Meet Emerging and Future Requirements
- Moving towards more products made in America
- Strengthening Alliances and Establishing New Partners

ARMAMENTS & AMMUNITION





U.S. ARMY COMBAT CAPABILITIES DEVELOPMENT COMMAND – ARMAMENTS CENTER

2022 NDIA Future Force Capabilities Conference

Mr. Anthony J Sebasto, SES

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(A) Director

DEVCOM – Armaments Center



ARMAMENTS CENTER



RESEARCH



DEVELOPMENT



PRODUCTION



FIELD SUPPORT



DEMILITARIZATION

Munitions Engineering and Technology Center:

Energetics; Propellants; explosives; pyrotechnics; warheads; scalable effects; fuzing; guidance & controls; seekers; insensitive munitions; environmental technologies and explosive ordnance disposal; aero ballistics and telemetry; materials & structures

Weapons and Software Engineering Center:

Small, medium and large caliber weapons design, experimentation, evaluation, manufacturing, and integration; ballistics; automation & stabilization; digitization; embedded system software; directed energy; targeting, technical and tactical fire control; materials & structures; homeland defense and e-business systems

Enterprise and Systems Integration Center:

System engineering & analysis; quality engineering; logistics engineering; project management; business development; S&T planning; financial, data & knowledge management

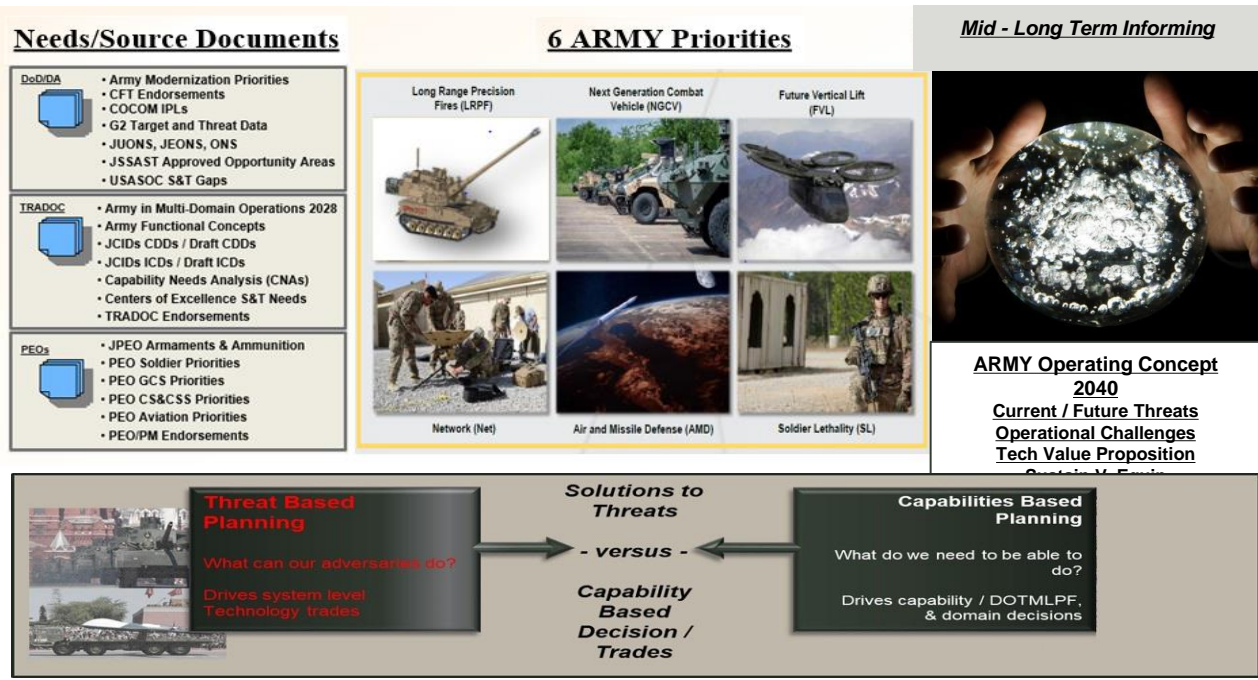
Providing Holistic Armament System Solutions for Fieldable
Lethality Overmatch



ARMAMENTS CENTER TECH BASE PLANNING



✓ Needs/gaps/priorities are analyzed across DoD Lethality stakeholders, Threat/Tech Trends, Future WF Concepts



Armaments Tech Base Planning across:
Threat, PM/Joint Stakeholders, Users/Combat Dev, SPAR, Technology Trends, Partner R&D



SMALL CAL ARMAMENTS



Recent Accomplishments:



- **6.8mm Next Generation Squad Weapon**
 - 3QFY19 – Successful transition of 6.8mm AR and Carbine Technology
- **6.8mm Family of Ammo**
 - 4QFY22 – Successful transition of 6.8mm FoA
- **Fire-Control Technologies**
 - Successful transition of Squad Combat Optics Performance Enhancement (SCOPE) tech to enable FY24 Av. Fire Control Tech Transition

Future Technology Thrusts:

*Enhanced Weapon Concepts & Lightweighting Tech
Enhanced Precision & Complex Target Defeat
Enhanced Concealed / Protected Target Defeat
Signature / Suppressor Technologies
Fires from Enclosure*

*Enabling / Augmenting Robotics
Intelligent / Collaborative Fire Control
Common Fire Control
Expanded Data Link Capabilities
Advanced Ballistic Algorithms*



6.8mm NGSW Weapon & Ammunition Tech Demo



MEDIUM CAL ARMAMENTS - GROUND



Recent Accomplishments:



- **50mm XM913 Weapon**
 - 3QFY21 – Successful transition of 50mm stabilized weapon & ammunition handling system
- **50mm Ammunition**
 - 3QFY21 – Successful transition of 50mm Area engagement and SP defeat ammunition
- **Scenario Based Intelligent Fire Control**
 - Successful demonstration of cross-caliber/platform MOSA F-C enabling significant increase in target engagement response, accuracy & effects



XM913 Weapon , Ammo & Fire Control Tech demo

Future Technology Thrusts:

*Smart / Enhanced Targeting Munitions
Multi-function / Cross-domain Munitions
Advanced Fuzing & Datalinks
Extended Range & Area Effects
Interceptor Munitions
Modular, Common, Multi-Use Components*

*Platform Agnostic Remote Weapons Tech
Robotic and Autonomous Armaments
Collaborative / Cooperative Fires
Non-Volume Suppressive Effects
Intelligent & Common Fire Control (FC)
Expanded Data Link Capabilities*

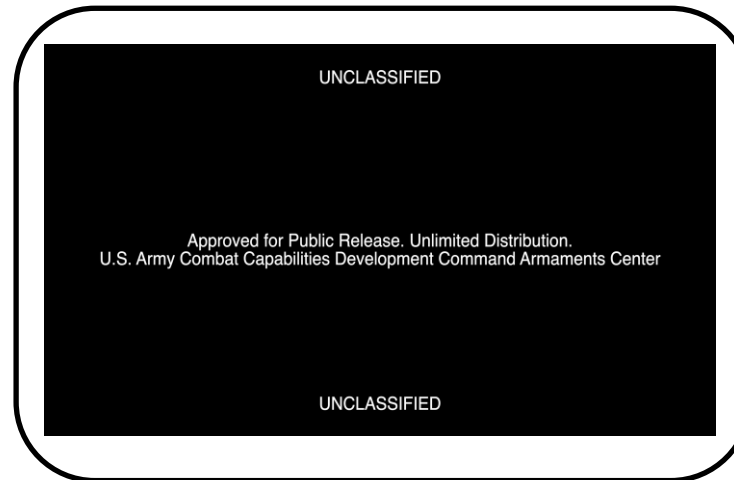


MEDIUM CAL ARMAMENTS - AIR

Recent Accomplishments:



- **20mm XM915 Weapon**
 - Successful demonstration of airworthy 20mm weapon system w/ >125k rounds fired to date
- **Fire-Control**
 - Successful demonstration of FACE/MOSA compliant architecture for enhanced targeting
- **Expendable Aviation Countermeasures**
 - Successful verification of expendable performance against sophisticated threat systems



XM915 Weapon & Fire Control Tech enhancements

Future Technology Thrusts:

*Smart / Enhanced Targeting Munitions
Multi-function, tunable & cross-domain Munitions
Advanced Fuzing & Datalinks
Extended Range Precision & Area Effects
Interceptor Munitions
Modular, Common, Multi-Use Components*

*Lightweight / Stabilized Weapon Mounts
Autonomous / Unmanned Armaments
Collaborative / Cooperative Fires
Non-Volume Suppressive Effects
Intelligent & Common Fire Control (FC)
Expanded Data Link Capabilities*



LARGE CALIBER INDIRECT FIRES



Recent Accomplishments:



- **Extended Range Cannon Artillery (ERCA) Weapon**
 - 4QFY21 – Successful XM1299 SPH demo & transition of ERCA Extend Range Weapon System
- **ERCA Ammo-Handling**
 - 2QFY21 – Successful demonstration of High Rate-of-Fire Artillery Autoloader >>2x current RoF
- **ERCA Suite of 155mm Munitions**
 - 4QFY19 – Successful XM1113 / XM1210 HE RAP transition
 - 1QFY22 – Successful demonstration of novel 155mm range extension technology >> 2x



ERCA Weapon & Munition Tech enhancements M109 FoV

Future Technology Thrusts:

*Smart/ Collaborative Munitions & Fires
Multi-function & Scalable Munitions
Non-Kinetic / Multi-Domain Effects
Counter Measure Hardened Munitions
Advanced Fuzing
Extended Range & Precision Effects
Interceptor Munitions*

*Robotic and Optionally Manned Artillery
Intelligent & Common, Fire Control (FC)
Expanded Data & Targeting Link
Capabilities
Advanced FC & Ballistic Algorithms
Assured PNT for GPS Degraded Env
Advanced Target Seeking and Maneuver*



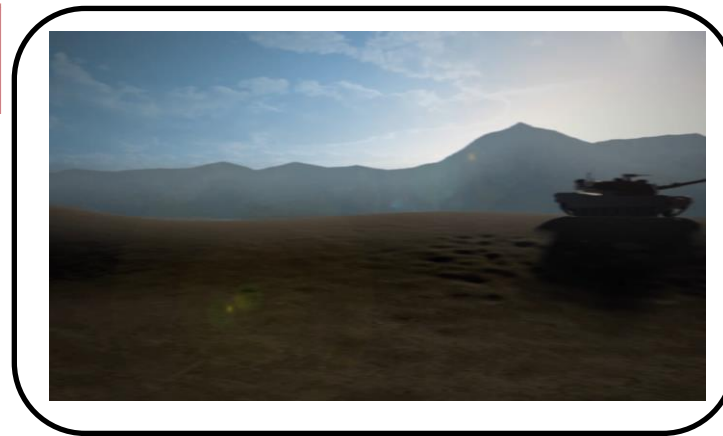
LARGE CALIBER DIRECT FIRE



Recent Accomplishments:



- **LCAS Weapons Turret**
 - 4QFY21 – Successful demonstration & industry transition of a platform agnostic LW 120mm automated weapon system
- **Extended Line of Sight (ELOS) Munitions**
 - 1QFY22 – Successful Guide-to-Hit demonstration of 120mm Extended Line of Site engagement >>3km
- **Scenario Based Intelligent Fire-Control**
 - Successful demonstration of cross-caliber/platform MOSA Fire-Control enabling significant increase in target engagement response, accuracy & effects



AMP Tech enhancements to fielded MBT

Future Technology Thrusts:

*Smart / Enhanced Targeting Munitions
Advanced Accuracy and Penetration Tech
Multi-function & Scalable Munitions
Extended Range Targeting & Precision Effects
Counter Measure Hardened Munitions
Advanced Fuzing*

*Robotic and Autonomous Armaments
Intelligent & Common Fire Control (FC)
Expanded Data Link Capabilities
Advanced FC & Ballistic Algorithms*



ENABLING ARMAMENTS TECH



Recent Accomplishments:



- **Ballistic Low Altitude Drone Engagement (BLADE)**
 - 2QFY22 – Successful demonstration and defeat of small Unmanned Aerial System (UAS) threats
- **FIERES Synchronization To Optimize Responses in MDO (FIRESTORM)**
 - 1QFY22 – Successful demonstration of Sensor-to-Shooter Networked Lethality across echelons in support of integrated and Joint Fires



Blade Tech enhancements to fielded RWS

Future Technology Thrusts:

Cross mission/domain tech
 Highly Directional / Scalable Explosives & Warheads
 Application of Advanced Materials
 Enhanced Propulsion & Energetic Science
 Advanced / Additive / Subtractive Manufacturing
 Ballistically Hardened structural materials
 Multi-function Fuzing and Power

Advanced Decision Aids & Networked Lethality
 Verified and Validated M&S tools
 Reduced Life Cycle Environmental Impact
 Contested Logistics Automation and Reduction



FUTURE OF ARMAMENTS STRATEGY

- **DEVCOM Armaments Center has initiated a Future of Armaments (FoA) Workshop series to:**
 - Identify Necessary Armaments Capabilities and Attributes to support the Army Operating Concept of 2040
 - Inform, shape, and align Armaments Investments through Threat-Based Analytics and Broad-Stakeholder Input
 - Broaden strategic partnerships & cooperative investments
- **Industry perspective to be provided by the National Armaments Consortium (NAC)**
- **Strategy completion targeted FEB 2023**

Leading the Continued Modernization of Armaments through both Evolutionary and Revolutionary Strategic Investments



PARTNERING THROUGH TECHNOLOGY TRANSFER



- Our most common tools:
 - CRADAs
 - Educational Partnerships
 - Service Agreements
 - Consortia
 - Patent Licensing
 - IR&D
 - SBIR/STTR
 - International Agreements
- **Science & Technology**
POC: Michael George, michael.c.george1.civ@army.mil
- **Cooperative R&D Agreements (CRADAs)/Patent Licenses/Testing Services/Engineering Services**
POC: Andrew Lenz, andrew.j.lenz6@army.mil
- **IR&D Technical Interchange**
POC: Don Geiss, donald.a.geiss.civ@army.mil
- **Small Business Innovation Research**
POC: Ben Call, benjamin.d.call.civ@army.mil
- **International Cooperation**
POC: Scott Cawood, scott.a.cawood.civ@army.mil
- **Department of Defense Ordnance Technology Consortium (DOTC)**
POC: Glen Berg, glen.w.berg.civ@army.mil



Visit our Technology Transfer Website
<https://ac.ccdc.army.mil/collaborate/>

***CCDC Armaments Center Transfers
 Technology to the Industry Base to Speed
 Transition to the Warfighter***



QUESTIONS / DISCUSSION



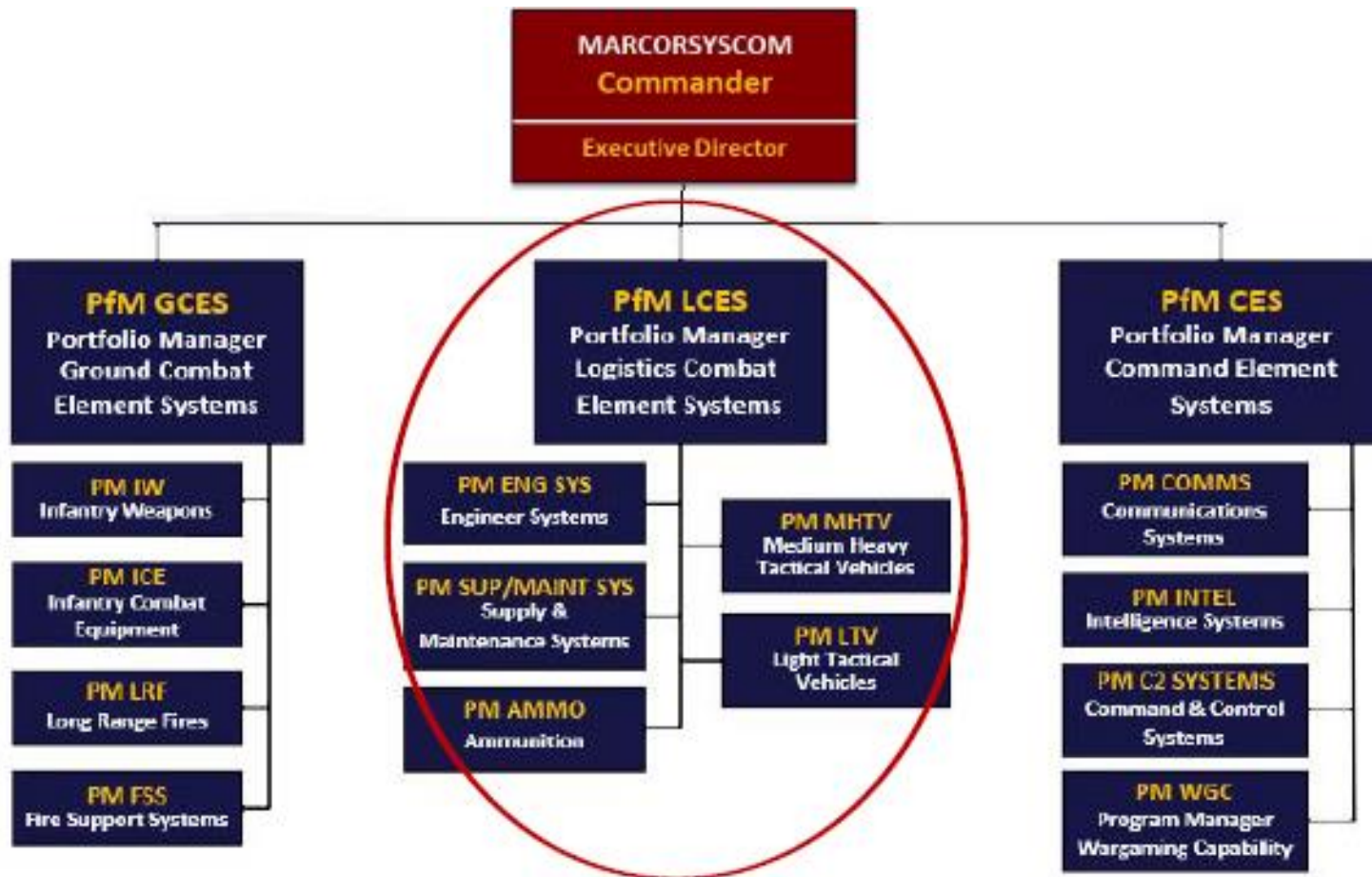
MARINE CORPS SYSTEMS COMMAND
Equipping our MARINES

Marine Corps Systems Command Program Manager, Ammunition



Mr. Scott Adams
20 September 2022

Approved for Public Release





MARINE CORPS SYSTEMS COMMAND

Equipping our MARINES

PM Ammo

Program Manager
Mr. Scott Adams

Deputy Program Manager
LtCol Brian Wisneski

JPEO / JMC
LNOs

Contracts Support Team

Technical Support Team

Product Manager
Maneuver
Ammo
and
Missiles

Product Manager
Close Combat
and
Combat
Ammunition

Environmental & Explosives Safety Branch

Inventory Management Branch

Plans & Analysis Branch

Ammunition Operations & Systems Team

CIV: 42
MIL: 31
***OGE: 4**
CTR: 17



- 38th Commandant of the Marine Corps' Planning Guidance
 - Force Design is his #1 priority
 - Divest of legacy defense programs and force structure that support legacy capabilities
 - Modernization effort to remain an expeditionary crisis response force
 - Ability to partner, persist and operate forward despite adversary employment of long-range precision fires
 - Decisions informed by wargaming, experimentation, and analysis
- Expeditionary Advanced Base Operations
 - Allows naval expeditionary forces to operate from a series of austere, temporary locations ashore or inshore within a contested or potentially contested maritime area in order to conduct sea denial, support sea control, or enable fleet sustainment.
- Stand-In Force
 - Small, lethal, low signature, and mobile
 - Designed to operate across the competition continuum within a contested area as the leading edge of a maritime defense-in-depth
 - Positioned forward, shoulder-to-shoulder with allies and partners



- Navy Marine Expeditionary Ship Interdiction System (NMESIS)
 - Two Naval Strike Missiles (NSM) containers on a remotely-operated unmanned Joint Light Tactical Vehicle (JLTV)
- Organic Precision Fires-Mounted (M)
 - Loitering munition; provides the Marine Corps with ISR and precision indirect fire strike capability
- Infantry Modernization
 - Improved lethality while maintaining/improving the mobility of the individual Marine, the Marine Rifle Squad, and the MAGTF
 - M27 Infantry Automatic Rifle
 - Next Generation Squad Weapon
 - Shoulder-Launched Weapon Systems
 - 66 mm Lightweight Assault Weapon-Fire From Enclosure (LAW-FFE)
 - 84mm AT-4 Confined Space (AT-4 CS)
 - 84mm Carl Gustaf recoilless rifle



- Polymer-cased ammunition
- Signature on Target ammunition for 7.62mm / .50 Cal / .338 Norma
- Increased lethality for 40mm weapon systems
- Trace capability for 40mm high velocity one-way luminescence (OWL)
- Improved Anti-Personnel Obstacle Breaching System (APOBS)
- Lightweight ammunition packaging
- Polymer recycling
- 3D Printable munitions and energetics



Questions?

Mr. Scott Adams

scott.adams1@usmc.mil

(703) 414-9531



U.S. ARMY JOINT MUNITIONS COMMAND



FUTURE FORCE CAPABILITIES & EXHIBITION

MR. NATHAN HAWLEY
JMC, MUNITIONS AND LOGISTICS READINESS CENTER DIRECTOR

COL LANDIS MADDOX • COMMANDER
CSM PETRA CASAREZ • COMMAND SERGEANT MAJOR



Version Number 2
As of 14 September 2022

Controlled by: AMJM-CIG
Distribution Statement A
Approved for public release
POC: Ms. Michelle Timmerman



**READY – RELIABLE –
LETHAL!**



MISSION AND PRIORITIES

PRIORITIES



SA Priorities

- People
- Readiness
- Modernization



CSA Priorities

- People
- Readiness
- Modernization



AMC Priorities

- People
- Readiness
- Modernization



JMC Priorities

- People
- Readiness
- Modernization



AMC

MISSION

Army Materiel Command Delivers Logistics, Sustainment and Materiel Readiness From the Installation to the Forward Tactical Edge to Ensure Globally Dominant Land Force Capabilities.

VISION

Army Materiel Command is Operationalized and Postured to Sustain a MDO Capable and Ready Force

JMC

MISSION

Provide the Joint Force with Ready, Reliable, Lethal Munitions at the Speed of War Sustaining Global Readiness.

VISION

Provide Lethality that Wins!

People – Readiness – Modernization



OUR PORTFOLIO



GLOBAL SUSTAINMENT



JOINT SERVICE SUPPORT



17 Organic Industrial Base Facilities
 15 Ammunition Sites
 2 Chemical Sites

\$64B Munitions Inventory

**\$6.2B in Total Foreign Military Sales (FMS);
 86 Countries**

12,000+ Employees Enabling Joint Warfighter Readiness, While Relentlessly Modernizing.

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JMC ORGANIC INDUSTRIAL BASE

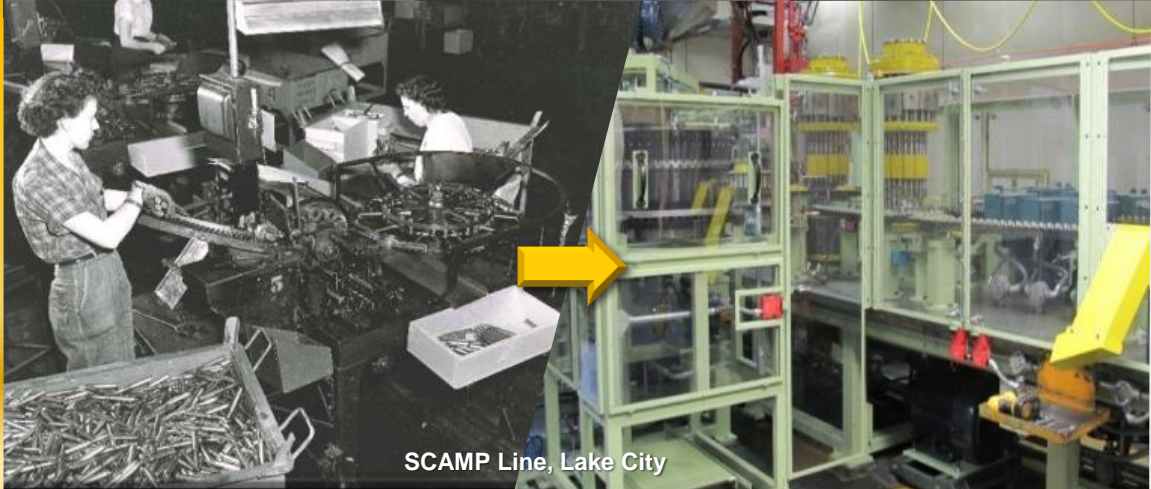
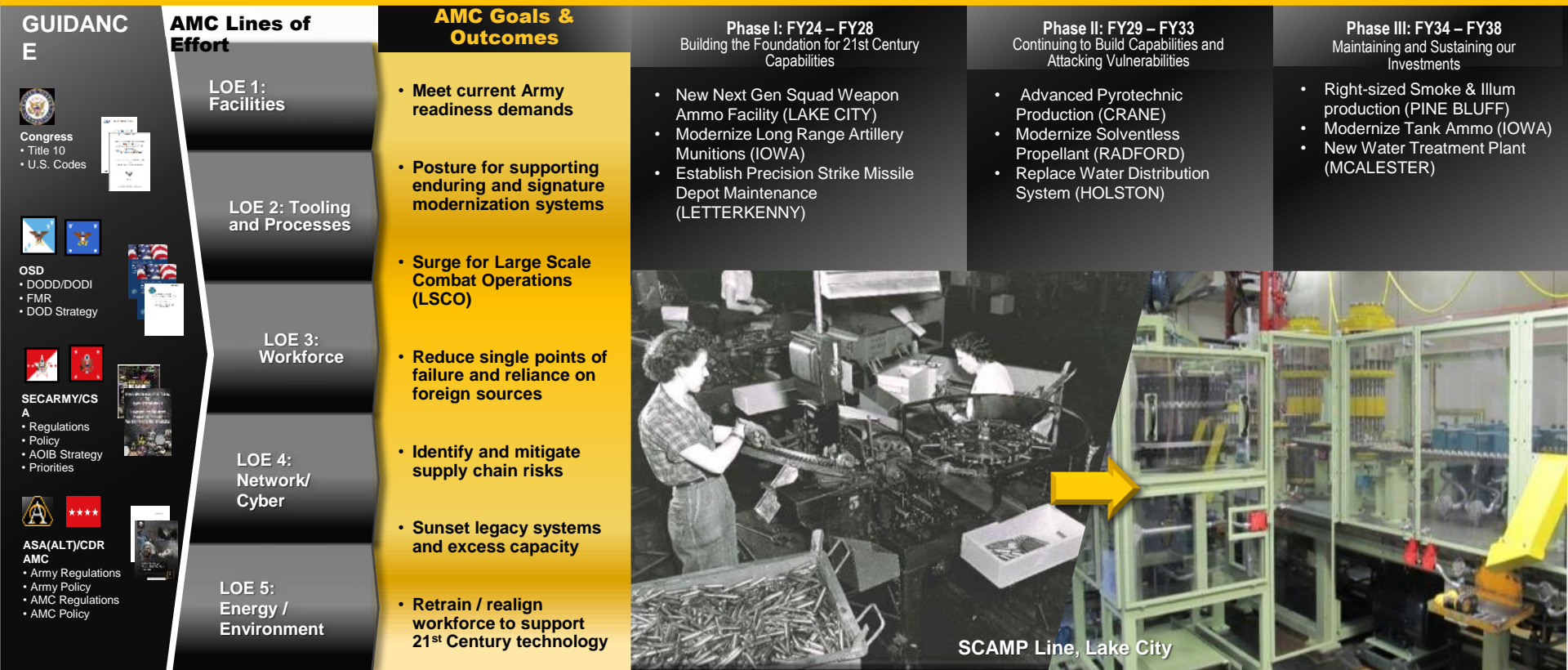


Team JMC - Providing Munitions Readiness to the Warfighter

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JMC OIB MODERNIZATION: 15-YEAR APPROACH



SCAMP Line, Lake City

A Strategic Sustainable Path to Modernization



MUNITIONS TO THE EUCOM AOR

JMC Industrial Base Support:

- 2141 trucks from 8 locations to 5 airfields and 1 seaport
 - 1543 trucks to APOEs, 598 trucks to SPOEs
- 1733 TEUs shipped to MOTSU for 5 un-forecasted vessels
 - 598 TEUs of ammo moved by truck to MOTSU
 - 1135 TEUs of ammo moved by rail to MOTSU

Air

- 2022 – 327 flights of ammo to Ukraine, Poland and Germany
- 2021 – 80 flights of ammo total

Vessels

- Mar – (AS29) 413 containers.
- Apr – (AS32) 451 containers
- Jun – (AS33/AF58) 318 containers
- Jul – (AS34) 294 containers
- Aug – (AS35) 257 containers

Presidential Drawdowns #1-19

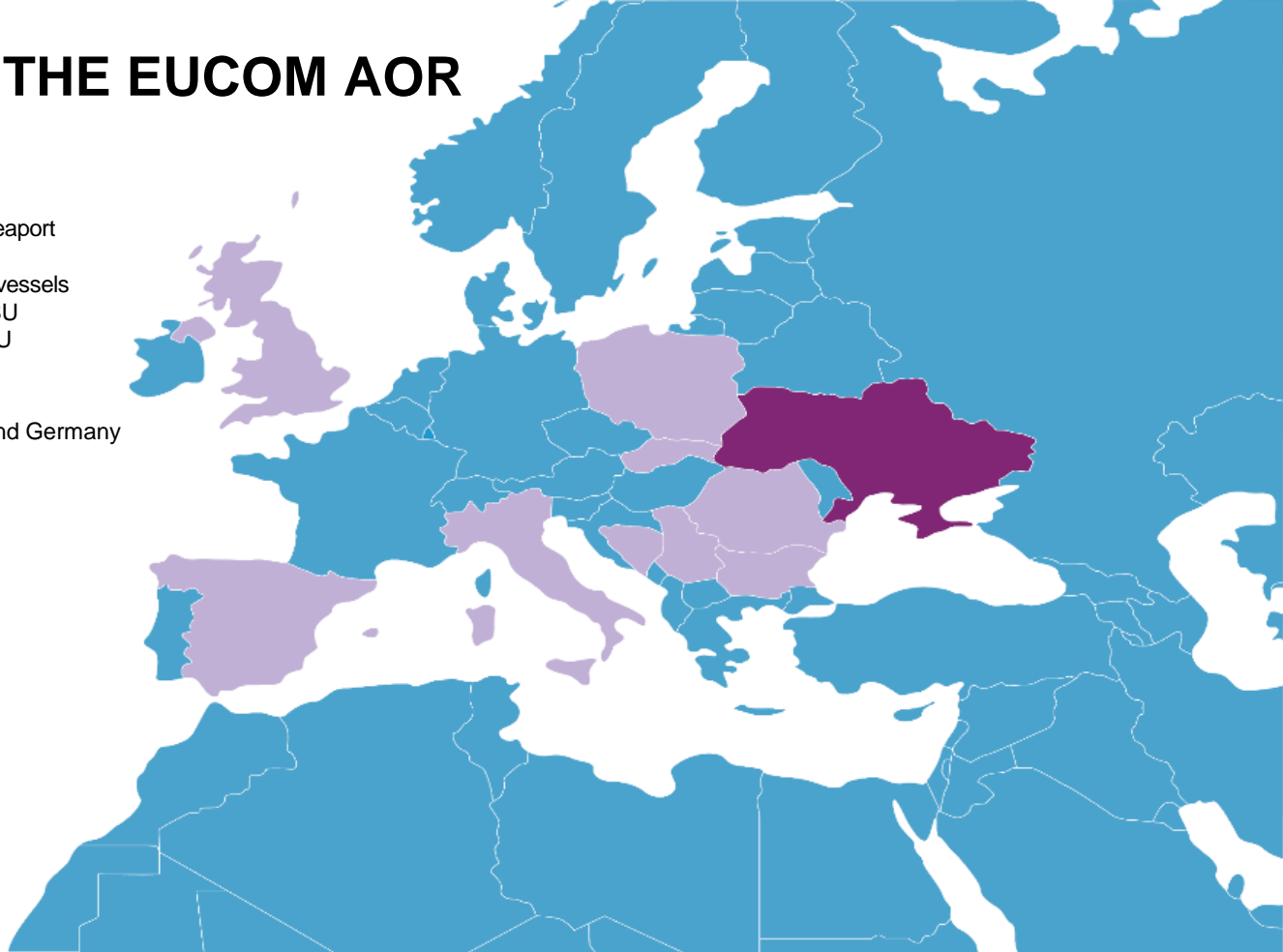
- 70M+ Rounds valued at over \$1.3B

Ukraine Security Assistance Initiative

- 1.1M Rounds valued at \$373.3M

Foreign Military Sales

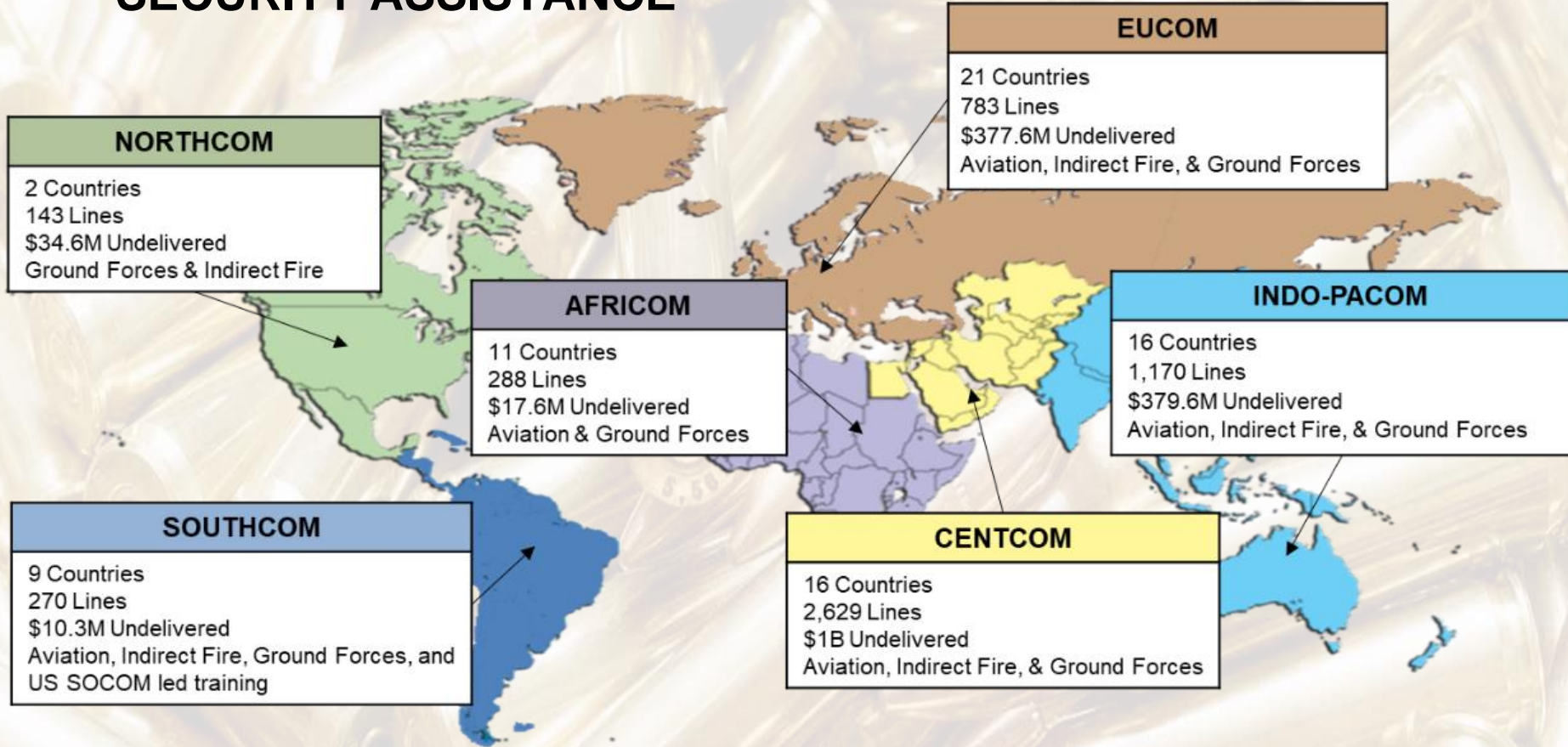
- 2.7M Rounds valued at \$185.6M



READY – RELIABLE – LETHAL!



SECURITY ASSISTANCE



Building Capacity and Capability for Partners and Allies.



TAKE AWAYS

- We remain nested with the Army's and AMC priorities of People, Readiness, and Modernization.
- JMC synchronizes, integrates, and operationalizes the capabilities of our Organic Industrial Base (OIB), providing munitions readiness to the Joint Force to meet current, future, and contingency requirements in Large Scale Combat Operations.
- We are focused on transforming the Ammunition OIB and mitigating risk in the munitions supply chain.
- Collaboration with our unmatched network of alliances and partnerships is vital in providing strategic readiness to our Warfighters.

Ready – Reliable – Lethal!





QUESTIONS

READY – RELIABLE – LETHAL!

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