

# JOINT ARMAMENTS FORUM & EXHIBITION

*“Balancing  
Armament  
Innovation  
and Readiness  
Improvements within  
Budget Constraints”*



MAY 12-15, 2014

[WWW.NDIA.ORG/MEETINGS/4610](http://WWW.NDIA.ORG/MEETINGS/4610)

PHOENIX CONVENTION CENTER ▶ PHOENIX, AZ

EVENT #4610

## JOINT ARMAMENTS FORUM, EXHIBITION & TECHNOLOGY DEMONSTRATION MAY 12-15, 2014 ▶ PHOENIX CONVENTION CENTER ▶ PHOENIX, AZ

### FORUM ANNOUNCEMENT

The purpose of the Joint Armaments Forum, Exhibition & Technology Demonstration is to bring together the government and industry communities to participate in presentations and exhibits representing activities supporting the evolving requirements, technologies, systems, and ongoing production. Tutorial sessions addressing key topics of interest in requirements, ITAR, program management, etc., to the Armaments community.

### TUTORIALS

The Joint Armaments Forum Tutorial Sessions are focused to topics related to DoD requirements, program management, ITAR, or specific technologies that impact the current and future Armament community. The sessions have been chosen to address subjects relevant to the challenges of requirements, program management, and systems/technology today. Lead by subject matter experts, the tutorials communicate topic information and status and enables a discussion within the group to consider the implications for government and industry. Participation in these sessions is an opportunity to learn, understand, challenge, and discuss key areas of interest. The results provide benefits to strengthen the government and industry understanding of a topic impacting the evolving industrial base and capability objectives. Tutorial dialogue among attendees is the focus to share views and discuss paths forward.

### SMALL ARMS PROGRAM

*“Small Arms System Advances in Times of Diminishing Resources”*

Facing terrorist forces from MOUT to the open battlefield, American forces – both military and law enforcement alike – require the best equipment available. In a time of budget constraints, only through the efforts of the government and industry working together on a wide range of technology focus areas, will the tools necessary to support our soldiers, sailors, airmen and marines be realized.

These focus areas range from incremental enhancements to fielded legacy small arms systems to enabling technologies, such as fire control improvements, use of robotics and digitization of small arms systems on the battlefield, and others. The Small Arms Program seeks to bring together government and industry, manufacturers and users to support this objective for the military and law enforcement communities.

### GUNS, AMMUNITION, ROCKETS & MISSILES PROGRAM

*“Expanding the Warfighter’s Capability Through Technology Investment”*

The Guns, Ammunition, Rockets & Missiles Program focus areas include (but are not limited to) medium and large-caliber direct and indirect fire technologies, armament subsystems for air, land and sea applications, energetics, precision munitions, the integration of gun systems, rockets and missiles onto platforms and the modeling and simulation of guns, ammunition, rockets and missile components, subsystems, assemblies and systems.

### UNCONVENTIONAL EMERGING TECHNOLOGY ARMAMENT SYSTEMS PROGRAM

*“A 360-Degree View of Unconventional and Emerging Armaments: New Capability for Affordable Response”*

The Unconventional Emerging Technology Armament Systems Program focus areas include (but are not limited to) electromagnetics, lasers, high-power microwave, non-lethal counter-personnel and counter-material, hypersonic, sensor defeat (including spectrum denial), and other emerging armament technologies. This program addresses matters of enabling technologies, integration, analysis and simulation, training, mission application, operational considerations and safety across the technology focus areas. This program’s scope defeat technologies across the full spectrum from non-lethal to full lethality and scalable effects against personnel, structures and equipment.

## TRACK THEMES

The following are the objectives and outcomes expected from attending the breakout sessions.

### DIRECTED ENERGY: HPM, LASERS, EMP, ACOUSTICS

**Session Objective:** Education of DE for force application and force protection

**Session Outcome:** Greater understanding of novel, emerging technologies for minimizing collateral effects and projecting force

### MODELING & SIMULATION

**Session Objective:** Education of state-of-the-art methods and techniques for modeling armament systems

**Session Outcome:** Improved understanding of simulation techniques and capabilities for engineers and program managers

### EM RAIL GUN AND PROJECTILES

**Session Objective:** Identification of capability gaps for affordable armaments

**Session Outcome:** Guidance for government and industry investments

### ARMAMENT SYSTEMS

**Session Objective:** Identification of system solutions to warfighter needs

**Session Outcome:** Improved understanding of armament system capabilities for engineers and program managers

### JNLWD Advanced Planning Briefing to Industry

**Session Objective:** JNLWD communication to industrial partners and DoD labs

**Session Outcome:** Seeding government and industry participation

### AMMUNITION

**Session Objective:** Identification of ammunition solutions to warfighter needs

**Session Outcome:** Improved understanding of state-of-the-art ammunition capabilities for engineers and program managers

### NON-LETHAL TECHNOLOGY

**Session Objective:** Investments in affordable non-lethal response

**Session Outcome:** Compendium of current developments for combat NL scalable response

### SMALL ARMS WEAPONS

**Session Objective:** Communicate cost reducing technologies to coincide with diminishing resources

**Session Outcome:** Affordable cost reducing technology outlined

### 40MM GRENADE CARTRIDGES

**Session Objective:** Define improvement in Small Arms Ammunition effectiveness

**Session Outcome:** Enabling technology outlined

### EMERGING TECHNOLOGY - SENSORS, POWER, PAYLOADS, PLATFORMS AND AUTONOMY

**Session Objective:** Providing the building blocks for future affordable armaments capabilities

**Session Outcome:** Gain understanding of opportunities for reducing armaments system costs through smart technology applications

### INDIRECT FIRE

**Session Objective:** Identification of state-of-the-art long range fire support capabilities

**Session Outcome:** Improved understanding of state-of-the-art long-range fire support capabilities for engineers and program managers

### EMERGING MATERIALS APPLICATIONS FOR ARMAMENTS

**Session Objective:** Explanation of how materials, as building blocks for low-cost armaments, reduce system lifecycle cost

**Session Outcome:** Updated materials science education from current developments

### WARHEADS & ENERGETICS

**Session Objective:** Identification of state-of-the-art warhead and energetics component technologies

**Session Outcome:** Improved understanding of state-of-the-art warheads and energetics capabilities for engineers and program managers

### FIRE CONTROL

**Session Objective:** Define fire control technology to improve first round hit capability, reducing the number of rounds required to mitigate target

**Session Outcome:** Enabling technology roadmaps outlined

### DIRECT FIRE SYSTEMS

**Session Objective:** Identification of state-of-the-art conventional direct fire solutions for medium and large caliber applications

**Session Outcome:** Improved understanding of state-of-the-art direct fire capabilities and performance for engineers and program managers

### SMALL ARMS AMMUNITION

**Session Objective:** Define improvement in small arms ammunition effectiveness

**Session Outcome:** Enabling technology outlined

### ROCKETS & MISSILES

**Session Objective:** Identification of state-of-the-art rocket and missile solutions for fire support

**Session Outcome:** Improved understanding of state-of-the-art rocket and missile capabilities and performance for engineers and program managers

# MONDAY, MAY 12, 2014

8:00 AM - 3:00 PM **EXHIBITOR MOVE-IN - WEST HALL 1**

8:00 AM - 7:00 PM **REGISTRATION**

2:15 PM - 3:45 PM **SESSION I TUTORIALS**

**BREAKOUT A: Cryogenic Derived Vacuum Thermal Isolation for Firearm & Electronics Integration**  
**ROOM 126A**

▶ Mr. Howard Kent, *Armor Development Group, LLC*

**BREAKOUT B: Weapon System Dispersion Estimation via Sensitivity Factors and Error Budget Build-up**  
**ROOM 126B**

▶ Mr. Jeff Siewert, *Arrow Tech Associates, Inc.*

**BREAKOUT C: ARDEC's Technology Development Process: "Knowing What to Do and When to Do it"**  
**ROOM 126C**

▶ Mr. Mark Serben, *U.S. Army ARDEC*

3:45 PM - 4:00 PM **NETWORKING BREAK**

4:00 PM - 5:30 PM **SESSION II TUTORIALS**

**BREAKOUT A: Human Effects Modeling**  
**ROOM 126A**

▶ Mr. James Simonds, *The Human Effects Center of Excellence at Brooks Air Force Base*

**BREAKOUT B: 2014 ITAR Update and Status Review of ITAR Basics**  
**ROOM 126B**

▶ Mr. Jason Wong, *Firearms Law Group*

**BREAKOUT C: Small Caliber International Ballistics and Failure Analysis**  
**ROOM 126C**

▶ Mr. Jeff Conover, *Defense Contract Management Agency*

5:30 PM - 7:00 PM **NETWORKING RECEPTION - WEST HALL 1**

6:00 PM

**\*\*\*MANDATORY DEMONSTRATION/RANGE SAFETY MEETING (DEMONSTRATORS ONLY). MEET AT 6:00PM AT THE ENTRANCE TO EXHIBIT HALL**

## TUESDAY, MAY 13, 2014

- 7:00 AM - 6:30 PM **REGISTRATION**
- 7:00 AM - 8:00 AM **NETWORKING CONTINENTAL BREAKFAST**
- 8:00 AM - 5:00 PM **GENERAL SESSION - ROOM 120D**
- 8:00 AM - 8:15 AM **Welcome Remarks**  
▶ Mr. Dave Broden, *President, Broden Resource Solutions, LLC; NDIA Armaments Division Chairman*
- 8:15 AM - 8:35 AM **Keynote Address**  
▶ Honorable Janice Brewer, *Governor, State of Arizona*
- 8:35 AM - 9:15 AM **Keynote Address**  
▶ BG David Bassett, USA, *Program Executive Officer, Ground Combat Systems*
- 9:15 AM - 9:55 AM **Keynote Address**  
▶ BG John McGuinness, USA, *Program Executive Officer, PEO Ammunition*
- 9:55 AM - 10:35 AM **Keynote Address**  
▶ RDML Bryant Fuller, USN, *Deputy Commander, Ship Design, Integration and Naval Engineering, Naval Sea Systems Command*
- 10:35 AM - 11:00 AM **NETWORKING BREAK**
- 11:00 AM - 11:30 AM **Budget and DoD Policy Review**  
▶ Lt Col Robert Levinson, USAF (Ret), *Senior Defense Analyst, Bloomberg Government*
- 11:30 AM - 12:00 PM **Armament Cyber Considerations**  
▶ Mr. Erik Graham, *Security Architect, General Dynamics*  
▶ Mr. Brett Scott, *CTO, LiveSquare Security*
- 12:00 PM - 12:30 PM **Defense Consortia: A Proven Way to Rapidly Develop and Deploy New Armament Capability in Today's Environment**  
▶ Mr. Gary Schneider, *Chair, National Armament Consortium Executive Committee*
- 12:30 PM - 1:30 PM **NETWORKING LUNCHEON - ROOM 120BC**
- 1:30 PM - 2:15 PM **ARDEC Technology Vision**  
▶ Ms. Barbara Machak, *Executive Director, ESIC, ARDEC*
- 2:15 PM - 3:00 PM **Keynote Address**  
▶ COL Michael Coolican, USMC, *Director, Joint Non-Lethal Weapons Directorate, U.S. Marine Corps*
- 3:00 PM - 3:15 PM **NETWORKING BREAK**
- 3:15 PM - 3:45 PM **PM MAS**  
▶ COL Paul Hill, USA, *U.S. Army Project Manager, Maneuver Ammunition Systems*
- 3:45 PM - 4:15 PM **Operation Chromium**  
▶ MSG Jarion Halbisengibbs, USA, *10th Special Forces Group A, Fort Carson Colorado*
- 4:15 PM - 4:45 PM **Metal Fever, Beyond Lead Poisoning**  
▶ Mr. Jim Schatz
- 4:45 PM - 5:00 PM **Award Presentation**
- 5:00 PM - 6:30 PM **NETWORKING RECEPTION - WEST HALL 1**

# WEDNESDAY, MAY 14, 2014 - MORNING BREAKOUT SESSIONS

	<p><b>Small Arms Systems</b> Committee Chair: Mr. Brian Berger, <i>General Dynamics, OTS-Canada</i></p>	<p><b>Unconventional Emerging Armaments</b> Committee Chair: Mr. Dan Hartman, <i>Spectra Technologies, LLC</i></p>	<p><b>Guns, Ammunition, Rockets &amp; Missiles</b> Committee Chair: Mr. Matt Solverson, <i>General Dynamics OTS</i></p>
8:00	<p><b>PM Soldier Weapons - Room 126A</b> Session Chair: COL Scott Armstrong, USA, <i>PM Soldier Weapons</i></p>	<p><b>Non-Lethal and Enabling Technologies - Room 126C</b> Session Chairs: Mr. George Orrison, <i>Metal Storm USA</i> Mr. Brian Sullivan, <i>Rheinmetall</i> Mr. Bryan Bockman, <i>Rocky Mountain Scientific Laboratory</i> Dr. Chester Wilson, <i>American Strategic Technologies</i></p>	<p><b>PM-CAS Activities</b> COL Willie Coleman, USA, <i>Combat Ammunition Systems</i></p>
8:30	<p><b>PM Soldier Weapons Panel</b> COL Scott Armstrong, USA, <i>PM Soldier Weapons</i> LTC Shawn Lucas, USA, <i>PM Soldier Weapons</i> LTC Paul Alessio, USA, <i>PM Soldier Weapons</i> SFC Jason Dorwart, USA, <i>PM Soldier Weapons</i></p>	<p><b>Non-Lethal Directed Energy Gaps and Investments</b> Mr. David Law, <i>JNLWD</i></p>	
9:00	<p><b>JSSAP Session - Room 126A</b> Session Chair: Mr. Joel Goldman, <i>U.S. Army ARDEC</i></p>	<p>16573 — ARDEC Non-Lethal Overview Mr. Fareed Choudhury, <i>U.S. Army ARDEC</i></p>	<p><b>PM-CCS Activities</b> COL Richard Hornstein, USA, <i>Close Combat Systems</i></p>
9:30	<p><b>Joint Service Small Arms Synchronization (JSSAST) Activities</b> Mr. Joel Goldman, <i>U.S. Army ARDEC</i> Mr. John Edwards, <i>U.S. Army ARDEC</i> Dr. Barton Halpern, <i>U.S. Army ARDEC</i></p>	<p><b>Human Effects Modeling, JNLWD</b> Mr. James Simonds, <i>The Human Effects Center of Excellence at Brooks Air Force Base</i></p>	<p><b>Medium Caliber and Tank Ammunition Overview</b> COL Paul Hill, USA, <i>U.S. Army Project Manager, Manuever Ammunition Systems</i></p>
10:00		<p>15485 — Augmented Reality: Improving Soldier-Weapon System Performance with Modest Improvements in Dual-Use Technology Mr. Bryan Bockman, <i>Rocky Mountain Scientific Laboratory</i></p>	
10:30	<b>Break</b>		
11:00	<p><b>Small Arms Industry Panel - Room 126A</b> Session Chair: Mr. Brian Berger, <i>General Dynamics, OTS-Canada</i></p>	<p>15538 — NATO Nonlethal Capabilities Mr. John Edwards, <i>U.S. Army ARDEC</i></p>	<p><b>Super Guns: Most Formidable Guns in the Modern World</b> Mr. David Smith, <i>U.S. Army ARDEC</i></p>
11:30	<p><b>Small Arms Industry Panel</b> Mr. Tom Loper, <i>FNH USA, LLC</i> Mr. Matthew Hemenez, <i>Sure Fire, LLC</i> Mr. George Kontis, <i>Knight's Armament Company</i> Mr. Gabe Bailey, <i>Beretta USA Corp. (Invited)</i></p>	<p>16545 — New Solutions and Capabilities Enabled by Supercavitating Ammunition Mr. Richard Morgan, <i>DSG Technology</i></p>	
12:00	<b>Lunch - Room 120BC</b>		

# WEDNESDAY, MAY 14, 2014 - AFTERNOON BREAKOUT SESSIONS

Small Arms Systems		Unconventional Emerging Armaments - U.S. Only	Guns, Ammunition, Rockets & Missiles	
1:00	<b>Small Arms Weapons Room 126A</b> Session Chair: Mr. Charles Zeller, <i>NSWC, Crane</i> 16511 — A New Approach to Understanding Small Arms Recoil Mr. George Kontis, <i>Knights Armament</i>	<b>Small Arms Ammunition Room 126B</b> Session Chair: Dr. Dion Serben, <i>NAVSEA</i> 16529 — Design Solutions for the Elimination of Case Mouth Waterproofing in Small-Caliber Ammunition Mr. Jonathan Gill, <i>ATK</i>	<b>Modeling and Simulation Room 127A</b> Session Chairs: Mr. Jeff Caratelli, <i>Alcoa Defense</i> Mr. Mark Serben, <i>U.S. Army ARDEC</i>	<b>Ammunition - Room 127B</b> Session Chairs: Mr. Jeff Siewert, <i>Arrow Tech Associates</i> Mr. Howie Wendt, <i>NSWC Dablgren</i>
	15470 — Cryogenic Derived Vacuum Thermal Isolation for Firearm & Electronics Integration Mr. Howard Kent, <i>Armor Development Group, LLC</i>		<b>U.S. Only</b> 16802 — Office of Naval Research Solid State Laser (SSL) Program Mr. Peter Morrison, <i>ONR</i>	16540 — ARDEC Computational Based Engineering Capabilities and their Validation Tools Dr. Don Cartucci, <i>U.S. Army ARDEC</i>
1:20	15470 — Cryogenic Derived Vacuum Thermal Isolation for Firearm & Electronics Integration Mr. Howard Kent, <i>Armor Development Group, LLC</i>	<b>U.S. Only</b> 16723 — Cost Effective Responses to Air Defense: Boeing's Work on the High Energy Laser Mobile Demonstrator Mr. Joseph Paranto, <i>The Boeing Company</i>	16549 — Multifaceted Gun Fluid Flow Modeling and Experimentation ARDEC Mr. Anthony Cannone, <i>U.S. Army ARDEC - Benet Laboratories</i>	16524 — 25 MM Non-Energetic Fragmenting (NEF) Cartridge Mr. Paul Reynolds, <i>General Dynamics</i>
	16527 — Mk316-M40A5 Accuracy Interaction Study Mr. Jeff Siewert, <i>Arrow Tech Associates, Inc.</i>		<b>U.S. Only</b> U.S. Air Force Counter-Electronics High Power Microwave Advanced Missile Program (CHAMP) Mr. Keith Coleman, <i>The Boeing Company</i>	15306 — Beyond TSPI: Using Data Fusion to Combine Multiple Sources of Live Fire Test Data to Determine Aerodynamics and Characterize In-flight Control Events Mr. Alan Hathaway, <i>Arrow Tech Associates</i>
2:00	16531 — The LWMMG .338 - From Invention to Maturation Mr. Matthew Diehl, <i>General Dynamics - OTS</i>	<b>U.S. Only</b> 16799 — Evaluation Of High Power Radio Frequency (HPRF) Technologies For Maritime Applications Mr. Ryan Hoffman, <i>Office of Naval Research</i>	15482 — Understanding Risk in Acceptance Testing Mr. Sam Mason, <i>ATK</i>	<b>Direct Fire Guns - Room 127B</b> Session Chairs: Mr. Rob Brewer, <i>NAVIR</i> Mr. David Smith, <i>U.S. Army ARDEC</i>
	15474 — Accelerometer-Based Reliability & Condition-Based Maintenance System For Firearms Mr. Howard Kent, <i>Armor Development Group, LLC</i>		<b>Armament Systems - Room 127A</b> Session Chairs: Mr. Mike Pattison, <i>Meggitt Defense Systems</i> Dr. Steve Piper, <i>Piper Pacific International</i>	16537 — Advanced Lethality and Accuracy System for Medium Caliber (ALAS-MC) Mr. Michael LeFante, <i>U.S. Army ARDEC</i>
2:20	16495 — Expanding the Armed Forces Capability through Turreted Mortar Systems Mr. Jukka Tiainen, <i>Patria Land Systems</i>			

**Break**

**2:40**

# WEDNESDAY, MAY 14, 2014 - AFTERNOON BREAKOUT SESSIONS

Small Arms Systems		Unconventional Emerging Armaments - U.S. Only	Guns, Ammunition, Rockets & Missiles	
3:00	<b>Modeling and Simulation Room 126A</b> Session Chair: Mr. Brian Berger, <i>General Dynamics OTS - Canada</i> 15472 — VENOM - Optical Crosswind Measurement Device / xWINDS - Sniper Training System / Zero Lens - NV Device Dr. Leo Volfson, <i>TPL</i>	<b>Rail and Gun Projectile U.S. Only - Room 126C</b> Session Chair: Mr. Jerry Poettker, <i>Boeing Phantom Works</i> <b>U.S. Only</b> Keynote Speaker — ONR Railgun Program and OSD Land-Based Railgun Demonstration Program LCDR Jason Fox, USN, <i>Office of Naval Research</i>	<b>Armament Systems - Room 127A</b> Continued 16561 — Defeating Magnetic Interference on the Battlefield, How Multiple Sensory Inputs are Enabling Lightweight Robust Weapon Pointing for Mortar Fire Control Systems Mr. Ralph Tillinghast, <i>U.S. Army ARDEC</i>	<b>Warheads and Energetics Room 127B</b> Session Chairs: Mr. Joe Buzzett, <i>General Dynamics OTS</i> Mr. Enrico Mutascio, <i>Estrelina Defense</i> 16564 — ARDEC Fuze Technology Overview Mr. Evan Young, <i>U.S. Army ARDEC</i>
	16576 — Developments in .50cal Short Range Training Ammunition Mr. Luis de Sousa, <i>General Dynamics OTS - Canada</i>		16565 — Launching Artillery and Mortars into the 21st Century with Digital Fire Control Mr. Ross Arnold, <i>U.S. Army ARDEC</i>	
3:20	16543 — Assessing Bullet Terminal Effects Mr. Alex Davies, <i>QinetiQ</i>	<b>U.S. Only</b> 16804 — Railgun Technology Development Mr. Robert Taylor, <i>General Atomics</i>	16570 — Applying Systems Thinking Principles to Indirect Fire Control Software Development Mr. Ross Arnold, <i>U.S. Army ARDEC</i>	16567 — Expanding Warfighter Munitions Capability Through Energetics Technology Investment Mr. James Wejsa, <i>U.S. Army RDECOM-ARDEC</i>
3:40	16535 — Using Finite Element Analysis to Help Understand and Optimize Slug and Tracer Compaction in a Tracer Bullet Mr. Mark Lee, <i>ATK</i>		<b>Non-Lethal - Room 126B</b> Session Chair: Dr. Barton Halpern, <i>U.S. Army ARDEC</i> JNLWD Small Arms NL Capability Gaps and Programs Mr. Peter Charles, <i>JNLWD</i>	15492 — Improved LW30 Ball Powder Propellant Mr. Paul Reynolds, <i>General Dynamics</i>
4:00	Modern Trends & Development in Global Ordnance: Snapshots from the LMO World Tour 2013 Mr. Dan Shea, <i>Long Mountain Outfitters, LLC</i>	<b>Indirect Fire Guns - Room 127A</b> Session Chairs: Mr. John Altrichter, <i>BAE Systems</i> Mr. Rollie Dohrn, <i>ATK</i> 16544 — Mortar Light-Weighting Technologies Mr. David Smith, <i>U.S. Army ARDEC</i> 16557 — Advanced Capability Extended Range Mortar (ACERM) Mr. Luke Steelman, <i>NSWC Dahlgren</i>	15480 — How DoD Munitions Programs Might Be Affected By Rising Raw Material Costs Mr. Rosario Lo Cascio, <i>U.S. Army ARDEC</i>	15528 — Selecting a Precision Munition: Balancing Cost with Operational Considerations Mr. Jon Peoble, <i>Raytheon Company</i>
4:20	16559 — Conceptual Scalable Non-Lethal Ballistic System Built with Existing and Developmental Hardware Mr. Jeff Widder, <i>Battelle</i>		16555 — Advanced Capability Extended Range Mortar (ACERM) Mr. Luke Steelman, <i>NSWC Dahlgren</i>	16519 — Cost Effective Large Diameter Rockets Using Extruded Propellant Rocket Motors Mr. Joseph Bellotte, <i>BAE Systems</i>
4:40	16559 — Conceptual Scalable Non-Lethal Ballistic System Built with Existing and Developmental Hardware Mr. Jeff Widder, <i>Battelle</i>	16557 — Advanced Capability Extended Range Mortar (ACERM) Mr. Luke Steelman, <i>NSWC Dahlgren</i>	16557 — Advanced Capability Extended Range Mortar (ACERM) Mr. Luke Steelman, <i>NSWC Dahlgren</i>	16519 — Cost Effective Large Diameter Rockets Using Extruded Propellant Rocket Motors Mr. Joseph Bellotte, <i>BAE Systems</i>



# THURSDAY, MAY 15, 2014

## GENERAL SESSION - ROOM 120D

8:00

Industrial Base Panel  
 Moderator: Mr. Scott Selle, *Nammo Talley, Inc.*  
 Panelists: Mr. Don Uhler, *Raytheon Company*  
 Mr. Tom Loper, *FNH USA, LLC*  
 Mr. Tim Bagniefski, *General Dynamics OTS*

8:40

Manufacturing the Future - Additive Manufacturing Innovation  
 Mr. Jon Cobb, *Stratasys, LTD*

## SMALL ARM SYSTEMS BREAKOUT SESSIONS

9:20

**Weapon Auxillary Equipment - Room 126A**  
 Session Chair: Mr. Brian Berger, *General Dynamics, OTS-Canada*

**40MM Grenade Munitions - Room 126B**  
 Session Chair: Mr. Bruce Webb, *Nammo Talley, Inc.*

16566 — Energy Harvesting for Illuminating Sights  
 Mr. Douglas Cox, *Mixed Signal Integration*

15446 — The Nammo 40mm Airburst Family  
 Mr. Helge Stadheim, *Nammo Raufossa AS*

9:40

15471 — Suppressor Incorporating Natural Sound Production Auditory Camouflage on Firing  
 Mr. Howard Kent, *Armor Development Groups, LLC*

16504 — 40mm Low Velocity Extended Range Air-Burst Munition System - Minimum Investment For Maximum Potential  
 Mr. Aw Cheng Hok, *Advanced Material Engineering*

10:00

16516 — Next Generation Fire Control System  
 Mr. Jonathan Piazza, *General Dynamics*

16510 — 40 mm Door Breaching Munition Concept Study  
 Mr. Christopher Perhala, *Battelle*

10:20

16556 — Low-cost Air Burst System Expands the Role of the MK19 40mm Grenade Launcher  
 Mr. Helge Stadheim, *Nammo Raufossa AS*

11:15 AM - 4:00 PM

### TECHNOLOGY DEMONSTRATION

Session Chairs: Mr. Sal Fanelli, *Marine Corps Systems Command* and Mr. Jim Schatz

11:15 AM - 11:30 AM

### Board Buses

11:30 AM - 12:30 PM

### En Route To Technology Demonstration - Lunch Provided On Bus

12:30 PM - 12:45 PM

### Mandatory Range Safety Briefing (All Attendees and Demonstrators Must Attend)

12:45 PM - 4:00 PM

### Technology Demonstration @ Cowtown Firing Range, Peoria, AZ

4:00 PM

### Depart For Phoenix Convention Center

## CO-LOCATED EVENT:

Co-located with this event is CyberWest: The Southwest Cyber Security Summit, also located at the Phoenix Convention Center, CyberWest is co-hosted by AFEI (an NDIA affiliate), Embry-Riddle Aeronautical University, and the Center for Aviation and Aerospace Leadership. The focus of this event is Building for the Future and features lectures and workshops on key cybersecurity topics. Attendees at both events are welcome to walk the exhibit hall floor and network during luncheons and receptions.

## ADDITIONAL AUTHORS

15439	Ms. Eva Friis	16537	Mr. Jeff Hart
15470	Mr. Trevor Shaw		Mr. Sam Koo
	Mr. Aarne Reid		Mr. Gary Milcheck
15471	Mr. Mark Walker		Mr. Gary Fleming
	Mr. Ashley Tilling	16540	Dr. Donald Carlucci
15472	Mr. Greg Hays		Dr. Jennifer Cordes
15474	Mr. Karl Lewis		Mr. James Kalinowski
	Mr. Michael Change		Mr. Nigel Gray
15482	Mr. Tom Flaherty	16543	Mr. Dan Hammond
15492	Ms. Laurel Dillon		Mr. Matt Haverty
	Mr. Bill O'Meara		Dr. Nicholas Lynch
15528	Mr. Jerry Schlabach		Mr. Matt Westlake
	Mr. Dan Tulloh	16547	Mr. Kim Dahl
16495	Mr. Kari Reunamäki	16549	Mr. Daniel Cler
16510	Mr. Jason Paugh		Dr. Laurie Florio
16516	Mr. Glenn Rossier	16557	Mr. Spencer Rouen
	Mr. Theodore Bloomhardt	16559	Mr. Chris Perhala
	Mr. Craig Pepper	16561	Mr. Mike Wright
	Mr. Gary Sander	16564	Ms. Karen Amabile
16524	Mr. Rick Wright	16565	Mr. Thomas Nealis
16527	Mr. Sal Fanelli	16570	Mr. Mike Wright
16529	Mr. John Westbrook	16799	Mr. Michael McQuage
16533	Mr. Ben Cole		

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# EXHIBITING COMPANIES

Updated as of 4/30/14

- Aimpoint, Inc.** **212**  
Aimpoint is the leading manufacturer of high quality electronic red-dot sights.
- AMREL** **117**  
AMERICAN RELIANCE (AMREL) manufactures the ROCKY line of rugged laptops, tablets, and handhelds, which are designed to operate in the harshest environments. Our MIL-STD 810G/461F certified platforms integrate devices for communications, data collection, logistics, and other applications. We customize, design, prototype, and deliver your solution faster than any competitor.
- AMTEC Corporation** **312**  
AMTEC Corp, Janesville, Wisconsin - A National Defense Corp Company. A system prime contractor and sole US supplier of 40mm ammunition and fuzing, as well as other mechanical fuzes and firing device systems and subsystems for the US Government and as a subcontractor to other US and allied nation defense contractors.
- Arrow Tech** **310**  
Arrow Tech Associates provides analytical support to customers worldwide with capabilities including: aerodynamics, aerostability, trajectory and firing tables, interior ballistics, rocket motor design, dispersion and in-bore balloting, structural analyses, and Guidance and Control Prototyping.
- Barrett** **107**  
Headquartered in Murfreesboro, Tennessee, Barrett is the world leader in large-caliber rifle design and manufacturing. Our products are used by civilian sport shooters, law enforcement agencies, the United States military and more than 73 State Department approved countries across the world.
- BCN Technical Services, Inc.** **304**  
Bliss, Clearing, Niagara Company (BCN Technical Services) has been a world leader in small caliber manufacturing equipment since the late 1800's. Bliss provides service, parts, complete rebuilds, and brand new, state of the art solutions for small caliber ammunition manufacturing. We are able to provide an entire line for manufacturing, or any simple solution. With on-site engineering and project management, we are ready to be your manufacturing partner!
- Chemring Ordnance** **109**  
Chemring Ordnance is a center of excellence for the design, development and production of ordnance, pyrotechnic products, and other munition components for military, homeland security, and first responders. We manufacture all types of 40mm low and high velocity ammunition; pyrotechnic marking, signalling, and tactical illumination devices; battlefield effects simulators; hand grenade fuzes and other ammunition components such as large caliber electronic primers.
- Colt Defense, LLC** **215**  
Colt rifles and carbines are the only 5.56mm weapon systems in the world that have been truly battle-tested under every condition that may be encountered on the diverse battlefields of the 21st century. The example established by the U.S. Armed Forces and the armed forces of more than 90 other nations around the world confirms that Colt offers weapons, which significantly increase the field readiness as well as the operational, tactical and strategic capabilities of a country's Armed Forces.
- DSG Technology** **319**  
The company has developed supercavitating products in 5.56mm, 7.62mm and 12.7mm and has supplied to various special ops communities.
- Eclipse Defense Technologies** **111**  
Eclipse Defense Technologies has developed a line of variable velocity launchers in 37mm and 40mm which are powered by compressed air and available with smooth or rifled bores. They are capable of launching rifled and fin stabilized projectiles at velocities matching the range to target, effectively reducing risk of injury.
- ENSINGER** **316**  
We can call on our many years of experience in a vast array of industrial sectors to find the optimum solution for your specific application. We design and manufacture semi-finished and finished products as well as complete assemblies tailored exactly to your individual requirements.
- FNH USA, Inc.** **116**  
FNH USA, LLC is a U.S. subsidiary of FN Herstal S.A., a global leader in the development and manufacturing of high-quality firearms for the military, law enforcement and commercial markets. A pioneer in innovative firearm technology since the days of John M. Browning, FN supplies customers in more than 100 countries worldwide. Based in McLean, VA with manufacturing operations in Columbia, SC, FNH USA is responsible for all U.S. based sales and marketing.
- General Dynamics-OTS** **204**  
General Dynamics Ordnance and Tactical Systems produces large, medium, and small caliber ammunition, artillery projectiles, mortar weapons and components as well as extruded and BALL POWDER® propellants. In addition, GD-OTS manufactures components for missiles, rockets and bombs; provides LAP services for a variety of munitions; and designs and produces warheads.

- GLOCK, Inc.** 120  
GLOCK pistols are the perfect combination of reliability and accuracy. Their high-tech engineering and construction create a handgun that can stand up to more punishment any conditions can generate.
- Heckler & Koch** 216  
Heckler & Koch is the world's premier small arms systems company and a major supplier to global military and federal law enforcement agencies. An innovative leader in design and manufacturing, Heckler & Koch provides technologically advanced firearms, logistical support, training and specialized services with the highest standards of innovation and reliability. Heckler & Koch's well known range of weaponry includes MP5, MP7, G36, HK 416, USP, P2000, P30 and HK45.
- ITT Enidine** 318  
ITT Enidine designs and manufactures shock and vibration mounts for numerous Defense and Aerospace applications such as Recoil Management, Blast Mitigation and Vibration Dampening. Specifically designed for these applications, our expertise ensures all products are compliant with military standards. Our extensive knowledge and experience enables us to provide our customers with superior analysis, products, services and support.
- Kistler Instrument Corporation** 315  
Kistler Instrument will exhibit its full line of piezoelectric sensors to include dynamic ballistic pressure sensors for various ballistics applications, along with high g accelerometers for recoil, shock & vibration. Featured Product (2014) 6217A ballistics pressure sensor, high sensitivity, 2000 bar (30 kpsi) range. Ideal sensor for mortars, launchers, flare guns, side air bag and more. Technical, applications engineers are also available at the booth for your specific applications.
- Kratos Defense & Security Solutions, Inc.** 119  
Kratos is a leading provider of advanced engineering, public safety and security systems, IT services, and war fighter solutions for the federal government, state and local agencies and commercial applications. We leverage our intellectual and technical strengths to provide our customers with leading edge professional services and solutions for mission success.
- Lancer** 219  
Lancer's Advanced Weapons & Components group is a team of engineers and manufacturing experts committed to providing innovative material solutions to war fighter and peace officers. The group provides advanced material solutions to the military and law enforcement community that make weapons and tools lighter, safer and more effective.
- Nammo Talley, Inc.** 308  
NAMMO is a world leading developer and supplier of ammunition and ammunition systems, missile and space propulsion products, and demilitarization services. Five Nammo Divisions; Small Caliber, Medium & Large Caliber, Missile Products, Demil and Nammo Talley, together provide our US Army Warfighters with quality, dependable products and services.
- National Armaments Consortium (NAC)** 311  
In operation for the last thirteen years, the Department of Defense Ordnance Technology Consortium (DOTC) is a collaborative partnership between the DoD and the National Armaments Consortium that leverages capabilities, development, prototyping and investments of all constituents – Government, Industry and Academia - to rapidly deliver ordnance technology to the warfighter.
- Olin-Winchester** 220  
Manufacturer of shotshell, rimfire, centerfire small caliber ammunition, up to and including 5.56mm, 7.62mm, and .50 cal ammunition and components.
- Otis Technology** 112  
Otis Technology is the industry leader in firearms maintenance systems. Otis provides products to the US Military, Hunters, Shooters, and Law Enforcement professionals worldwide. Made in the USA, Otis is Smart Gun Care.
- Precision Remotes, LLC** 115  
Precision Remotes manufactures an innovative line of armed and unarmed ultra-light remote weapon platforms. The Company's flagship products comprise three remote platforms: two site security products (T250DFS and T360FS) and an ultra-light remote weapon product (T360). The products are marketed under the TRAP (Telepresent Rapid Aiming Platform) name.
- Remington Arms** 209  
Remington Arms Company, Inc. produces innovative firearm and ammunition solutions for the military, government, and law enforcement markets, and is the largest global commercial supplier of firearms and ammunition to the hunting and shooting sports communities. Remington is part of a family of brands under the Freedom Group, Inc name. Freedom Group has facilities in twelve US states and produces over 1 million guns and close to 2 billion rounds of ammunition annually.

**RUAG Ammotec AG** 113  
RUAG Ammotec of Switzerland and RUAG SWISS P - The Sniper's Choice of special ammo for all your special needs, stands for the most sophisticated ammunition technology. RUAG develops and manufactures high performance standard infantry as well as special applications small arms ammunition and is supplying both Armed Forces and LE worldwide. Be it for training or duty, RUAG also has a wide range of lead-free ammunition including Frangible Ammo. RUAG Ammotec is your reliable partner at all times.

**Sierra Bullets** 118  
For over 60 years Sierra Bullets has been dedicated to the manufacture of the most accurate bullets in the world. This commitment to performance has established a "Tradition of Precision" for which Sierra is known throughout the world. Visit our website ([www.sierrabullets.com](http://www.sierrabullets.com)) or give us a call (660-827-6300) to learn more!

**Small Arms Defense Journal** 317  
Now on newsstands with a new look... Small Arms Review: a bimonthly publication covering all aspects of civilian, law enforcement, and military small arms. Small Arms Defense Journal: this quarterly publication provides a global perspective on defense industry small arms, accessories, and tactical gear.

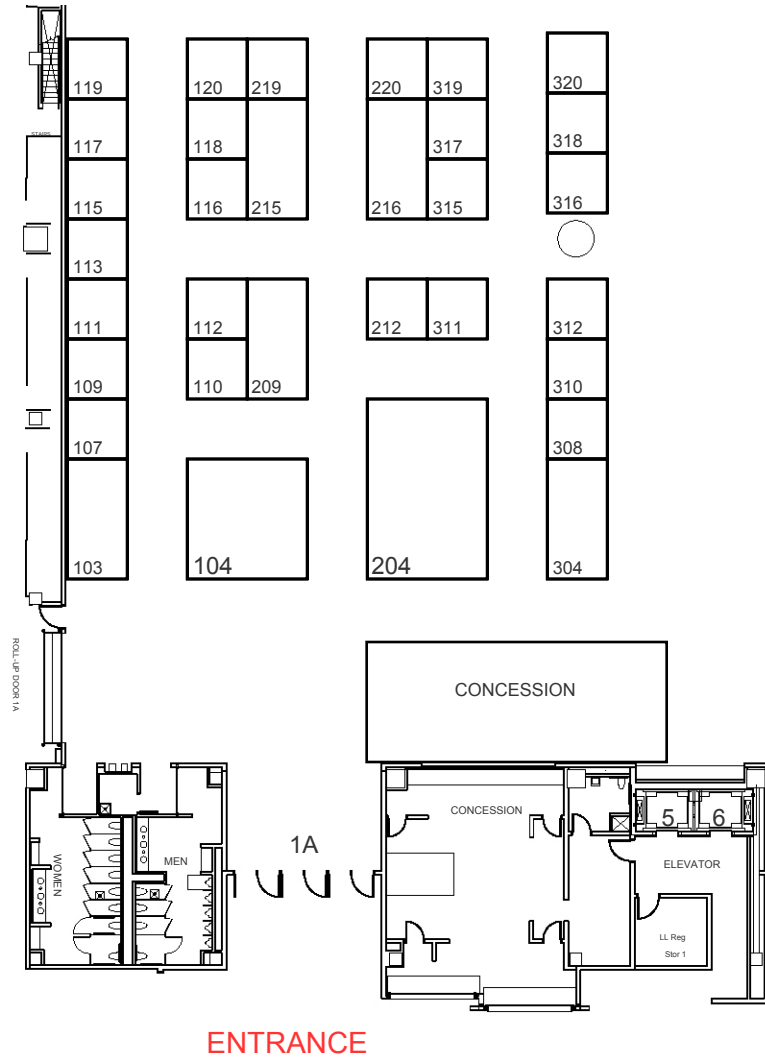
**Smith & Wesson** 103  
Smith & Wesson Holding Corporation (NASDAQ: SWHC) is a U.S.-based leader in firearm manufacturing and design, delivering a broad portfolio of quality firearms, related products and training to the global military, law enforcement, and consumer markets. The company's brands include Smith & Wesson, M&P and Thompson/Center arms. Smith & Wesson facilities are located in Massachusetts and Maine.

**Trijicon** 110  
Trijicon manufactures self illuminating combat optics for Small Arms and Machine Guns to include the Marine Corps' and Army's Rifle Combat Optic, the USMC's Squad Day Optic and Medium Machine Gun Day Optic. The Advanced Combat Optical Gunsight (ACOG) is a Full Mission Profile Optic that provides a distinct aiming point in all environments without having to rely on failure-prone batteries. Our sights include the ACOG, Ruggedized Miniature Reflex, Thermal Weapon Sight, Reflex, and Night Sights.

**Tungsten Heavy Powder, Inc.** 320  
Tungsten Heavy Powder & Parts (THPP) has been selling high-density tungsten powder for 15+ years. THPP also sells tungsten-carbide penetrators, heavy alloy fragments and subassemblies of any fragments on various substrates, such as silicon, magnesium, aluminum, et al. THPP also specializes in manufacturing the best heavy-alloy long-kinetic penetrator available today.

**U.S. Army Research, Development, and Engineering Command (RDECOM)** 104  
Based at Picatinny Arsenal, NJ, Redstone Arsenal, AL, and Aberdeen Proving Ground, MD (respectively), the Armament RDE Center (ARDEC), Aviation and Missile RDE Center (AMRDEC), and Army Research Laboratory (ARL) provide critical research and underpinning technologies that support armament developments for Soldier weapons, ground combat vehicles, aircraft, mortars, and field artillery. ARDEC, AMRDEC, and ARL pursue this mission through interactions and collaboration with partners in government, industry, and academia and through a robust internal research and development capability.

# EXHIBITOR FLOORPLAN



# TECHNOLOGY DEMONSTRATORS

Updated as of 4/30/14

- Aimpoint, Inc.
- Barrett
- Colt Defense, LLC
- Eclipse Defense Technologies
- FNH USA, Inc.
- General Dynamics-OTS
- GSA Direct/SRM Arms
- Heckler & Koch
- Precision Remotes, LLC
- Remington Arms



