

2018 GLOBAL EXPLOSIVE ORDNANCE DISPOSAL (EOD) SYMPOSIUM & EXHIBITION

MODERNIZING TO MEET NEW THREATS



August 14 – 15

Bethesda North Marriott

Bethesda, MD

NDIA.org/GlobalEOD18

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NDIA

WHO WE ARE

The National Defense Industrial Association is the trusted leader in defense and national security associations. As a 501(c)(3) corporate and individual membership association, NDIA engages thoughtful and innovative leaders to exchange ideas, information, and capabilities that lead to the development of the best policies, practices, products, and technologies to ensure the safety and security of our nation. NDIA's membership embodies the full spectrum of corporate, government, academic, and individual stakeholders who form a vigorous, responsive, and collaborative community in support of defense and national security. For more information, visit NDIA.org



LEADERSHIP

Nicole Motsek
EOD Warrior Foundation

EOD WARRIOR FOUNDATION

WHO WE ARE

The mission of the EOD Warrior Foundation is to improve the quality of life for the EOD family by providing financial relief, scholarship opportunities, physical, social, and emotional support.

The foundation offers four pillars of support (Financial Relief, Education, Hope & Wellness, EOD Memorial Care) and handles each request on a case-by-case basis. The assistance and resources provided are above and beyond the budgetary constraints of the Department of Defense (DoD) and Department of Veterans Affairs (VA).

The foundation believes that the EOD family is for life. We work to disarm the challenges of the EOD family by providing our support with compassion and caring to every individual we serve.

WELCOME TO THE 2018 GLOBAL EXPLOSIVE ORDNANCE DISPOSAL SYMPOSIUM & EXHIBITION

The National Defense Strategy of the United States has changed. We are no longer looking at counter insurgency in southwest Asia, and the fight against terrorism as the most significant threats against the United States and our allies and partners. Granted, the fight against violent extremist organizations continues, as do our deployments to Iraq, Syria and Afghanistan, but the major focus of the Department of Defense has changed to near peer competitors, namely China, Russia, Iran, North Korea. This is not a new mission to our EOD forces, but it is a change to the environment in which we will be expected to operate.

The theme of this symposium, “modernizing to meet new threats”, seeks to bring this new strategic direction to the forefront of our discussions between the military, industry, and academia. We hope to explore where the Services’ EOD forces are going, both Jointly and singly, and what are their current and future requirements. To that end we have front loaded requirements briefings from the Joint Improvised Threat Defeat Agency (JIDO), and three of the four Services. Its important to continue a strong dialog between the Services requirements developers and industry partners to ensure industry can “skate to where the puck is going to be”. Likewise, requirements developers need to understand the current state of technology to appropriately shape their requests for proposal.

The rest of the event seeks to reach out to our interagency partners, with high level speakers from the FBI and the DHS. This year we have the strongest international panel ever. We continue to reach out to non-traditional partners, including private companies that are engaged in weapons technical information collection; companies engaged in UXO and IED clearance; non-governmental humanitarian organizations; and academics who provide different viewpoints to many issues. Many of the most innovative approaches are coming from these non-traditional partners, and I encourage both government and industry to engage them.

The EOD Warrior Foundation continues to be a strong partner in this symposium, making sure we are also taking care of our EOD Warriors. The Foundation’s Executive Director, Nicole Motsek, will provide us with an update on the Foundation’s activities to “Disarm Challenges”; on day two, we will hear about current research into brain injury; and MG (ret) Manner, a member of the Foundation’s advisory board, will provide a seminar on military to civilian transition.

I challenge all attendees to seek out and talk to two individuals they don’t know at this weeks event. I guarantee you will find someone interesting.

Thanks, and enjoy the symposium!

Leo Bradley
EOD Symposium Chair
 Owner, L.E. Bradley Consulting, LLC

SCHEDULE AT A GLANCE

TUESDAY, AUGUST 14

Networking Breakfast

7:00 - 8:00 am

General Session

8:00 am - 12:30 pm

Exhibit Hall

9:00 am - 6:30 pm

Networking Lunch

12:30 - 1:30 pm

Concurrent Sessions

1:30 - 5:00 pm

Networking Reception

5:00 - 6:30 pm

WEDNESDAY, AUGUST 15

Networking Breakfast

7:00 - 8:00 am

General Session

8:00 - 11:45 am

Exhibit Hall & Silent Auction

9:00 am - 3:00 pm

Networking Lunch

11:45 am - 12:45 pm

Concurrent Sessions

12:45 - 2:15 pm

General Session

2:15 - 5:15 pm

EVENT INFORMATION

LOCATION

Bethesda North Marriott
5701 Marinelli Road
Bethesda, MD 20852

EVENT WEBSITE

NDIA.org/GlobalEOD18

EVENT THEME

Modernizing to Meet New Threats

ATTIRE

Civilian: Business Casual
Military: Class B or Uniform of the day

SURVEY AND PARTICIPANT LIST

You will receive via email a survey and list of attendees (name and organization) after the symposium. Please complete the survey, which helps make our event even more successful in the future.

EVENT CONTACTS

Andrea Lane
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Abby Abdala
Manager, Exhibits
and Sponsorships
(703) 247-9461
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Daniel Lung
Program Coordinator
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dlung@ndia.org

LEADERSHIP

Leo Bradley
EOD Symposium Chair

Eugene Squires
EOD Committee Chair

SPEAKER GIFTS

In lieu of speaker gifts, a donation is being made to the Fisher House Foundation.

HARASSMENT STATEMENT

NDIA is committed to providing a professional environment free from physical, psychological and verbal harassment. NDIA will not tolerate harassment of any kind, including but not limited to harassment based on ethnicity, religion, disability, physical appearance, gender, or sexual orientation. This policy applies to all participants and attendees at NDIA conferences, meetings and events. Harassment includes offensive gestures and verbal comments, deliberate intimidation, stalking, following, inappropriate photography and recording, sustained disruption of talks or other events, inappropriate physical contact, and unwelcome attention. Participants requested to cease harassing behavior are expected to comply immediately, and failure will serve as grounds for revoking access to the NDIA event.

AGENDA

MONDAY, AUGUST 13

1:00 – 5:00 pm **REGISTRATION OPEN**
GRAND BALLROOM FOYER

TUESDAY, AUGUST 14

7:00 am – 6:30 pm **REGISTRATION OPEN**
GRAND BALLROOM FOYER

7:00 – 8:00 am **NETWORKING BREAKFAST**
GRAND BALLROOM FOYER

8:00 – 8:15 am **WELCOME REMARKS**
SALONS F-H

CAPT Frank Michael, USN (Ret)
Senior Vice President, Program Development, NDIA

Eugene Squires
Senior Partner, Squires & Fulcher, LLC
Chair, NDIA EOD Committee

Nicole Motsek
Executive Director, EOD Warrior Foundation

8:15 – 9:00 am **KEYNOTE SPEAKER**
SALONS F-H

LTG Reynold Hoover, USA
Deputy Commander, U.S. Northern Command, Vice Commander, U.S. Element, NORAD, USA

9:00 – 9:45 am **KEYNOTE SPEAKER**
SALONS F-H

Michael Cardash
Former Commander, Israeli National Police Bomb Squad

9:00 am – 6:30 pm **EXHIBIT HALL OPEN**

9:45 – 10:15 am **NETWORKING BREAK**
SALONS A-E

Silent Auction Begins

10:15 – 11:00 am

JIDO TECHNOLOGY OUTREACH UPDATE

SALONS F-H

Dr. Catherine Keaty

Chief, Technology and Strategy Branch, JIDO

Lisa Swan, SES

Director, Material Solutions, Joint Improvised-Threat Defeat Organization

Jon Young

J8, JIDO

11:00 am – 12:00 pm

PANEL: ARMY EOD FUTURE REQUIREMENTS

SALONS F-H

COL Martin Weber, USA

Director, TRADOC Capability Manager - EOD

Moderator

Louis Analure

Product Manager, Unmanned Ground Vehicles, PM Force Projection

Pat McGrath

Chief, Materiel Development Branch, TRADOC Capability Manager (TCM) EOD

Col Jonathan Slater, USA

Program Manager, Close Combat Systems

12:00 – 12:30 pm

EOD WARRIOR FOUNDATION UPDATE: DISARMING CHALLENGES

SALONS F-H

Nicole Motsek

Executive Director, EOD Warrior Foundation

12:30 – 1:30 pm

NETWORKING LUNCH

SALONS A-E

CONCURRENT BREAKOUT SESSIONS

1:30 – 2:30 pm

Panel: Weapons Technical Intelligence Enterprise

SALONS F-H

LTC Philip Cordaro, USA

Joint Foreign Material Program Office, DIA

Moderator

MSgt Gage Coduto, USMC

EOD Advanced Manufacturing, USMC Detachment, Naval Surface Warfare Center Indian Head Division

Damien Spleeters

Director of Iraq-Syria Operations, Conflict Armament Research

1:30 – 2:30 pm

JIDO Technology Outreach: Technology Needs

WHITE FLINT AMPHITHEATER

Dr. Wayne Stanbery

Technology Development Lead Scientist

Moderator

Wearable Concealed Person Borne IED (PBIED) Sensors

Dr. Christopher Murphy

JIDO Contractor SME

Atomic Magnetometer Based IED Detection

Dr. Eun Oh

JIDO Contractor SME

Standoff Battery Drain and Verification

Dr. Hatcher Tynes

JIDO Contractor SME

2:30 – 3:00 pm

NETWORKING BREAK

SALONS A-E

3:00 – 4:00 pm

JIDO Technology Outreach: Technology Needs One-on-One Sessions

BROOKSIDE

3:00 – 4:00 pm

Panel: Navy/Joint Requirements, Resources and Acquisition Panel

SALONS F-H

RDML Joseph DiGuardo, USN

SOCOM

Moderator

LCDR Alex Campbell, USN

Director, EOD Programs (PMS 408)

CAPT John Moulton, USN

Branch Head, Expeditionary Combat Branch (OPNAV N957)

Maj Jason Perry, USMC

Officer in Charge, Marine Corps Detachment Indian Head

3:00 – 3:45 pm

Counter IED Breakout Session

WHITE FLINT AMPHITHEATER

Dr. Kirk Yeager

Chief Explosives Scientist, Federal Bureau of Investigation (FBI)

4:00 – 4:45 pm

Joint EOD Construct and Strategic Plan

WHITE FLINT AMPHITHEATER

CAPT Scott Kraft, USN

Commanding Officer, Naval Surface Warfare Center, Indian Head EOD Technology Division

4:00 – 5:00 pm

Panel: USMC/CTTSO Requirements Panel

SALONS F-H

Steven Roberson

Business Development Manager, QinetiQ North America

Moderator

Joel Carter

Program Analyst, IED Defeat/Explosives Countermeasures Branch, Combating Terrorism Technical Support Office

CAPT Joe David, USMC

EOD Chief Information Officer, Combat Developments and Integration

5:00 – 6:30 pm

NETWORKING RECEPTION

SALONS A-E

WEDNESDAY, AUGUST 15

7:00 am – 5:00 pm

REGISTRATION

GRAND BALLROOM FOYER

7:00 – 8:00 am

NETWORKING BREAKFAST

GRAND BALLROOM FOYER

8:00 – 8:15 am

ADMIN REMARKS

SALONS F-H

Leo Bradley

Owner, L.E. Bradley Consulting, LLC

EOD Symposium Chair

8:15 – 9:15 am

PANEL: CONGRESSIONAL POLICY

SALONS F-H

Col Wes Hallman, USAF (Ret)

Senior Vice President, Policy, National Defense Industrial Association

Moderator

Paul Arcangeli

Minority Staff Director, House Armed Services Committee (HASC)

Tim Bertocci

Deputy Chief of Staff, Office of Representative Tim Walz, EOD Caucus Co-chair

Maj Daniel Long, USAF

Legislative Liaison, U.S. Air Force

Ian Staples

Legislative Director, Office of Representative Susan Davis, EOD Caucus Co-Chair

9:00 am – 3:00 pm

EXHIBIT HALL OPEN

SALONS A-E

- 9:15 – 10:00 am **KEYNOTE SPEAKER**
SALONS F-H
LTC Matt Kuhns, USA
Commander, 192nd OD BN (EOD)
- 10:00 – 10:30 am **NETWORKING BREAK**
SALONS A-E
- 10:30 – 11:15 am **CWMD KEYNOTE: DHS PROGRAMS IN SUPPORT OF THE CWMD MISSION**
SALONS F-H
Hon. James McDonnell
Assistant Secretary for Countering WMD, Department of Homeland Security
- 11:15 – 11:45 am **EOD WARRIOR FOUNDATION: BRAIN INJURY IMPACTS**
SALONS F-H
Alexandra Bradley
MALS, MCHES, ATC
- 11:45 am – 12:45 pm **NETWORKING LUNCH**
SALONS A-E
Silent Auction Closes

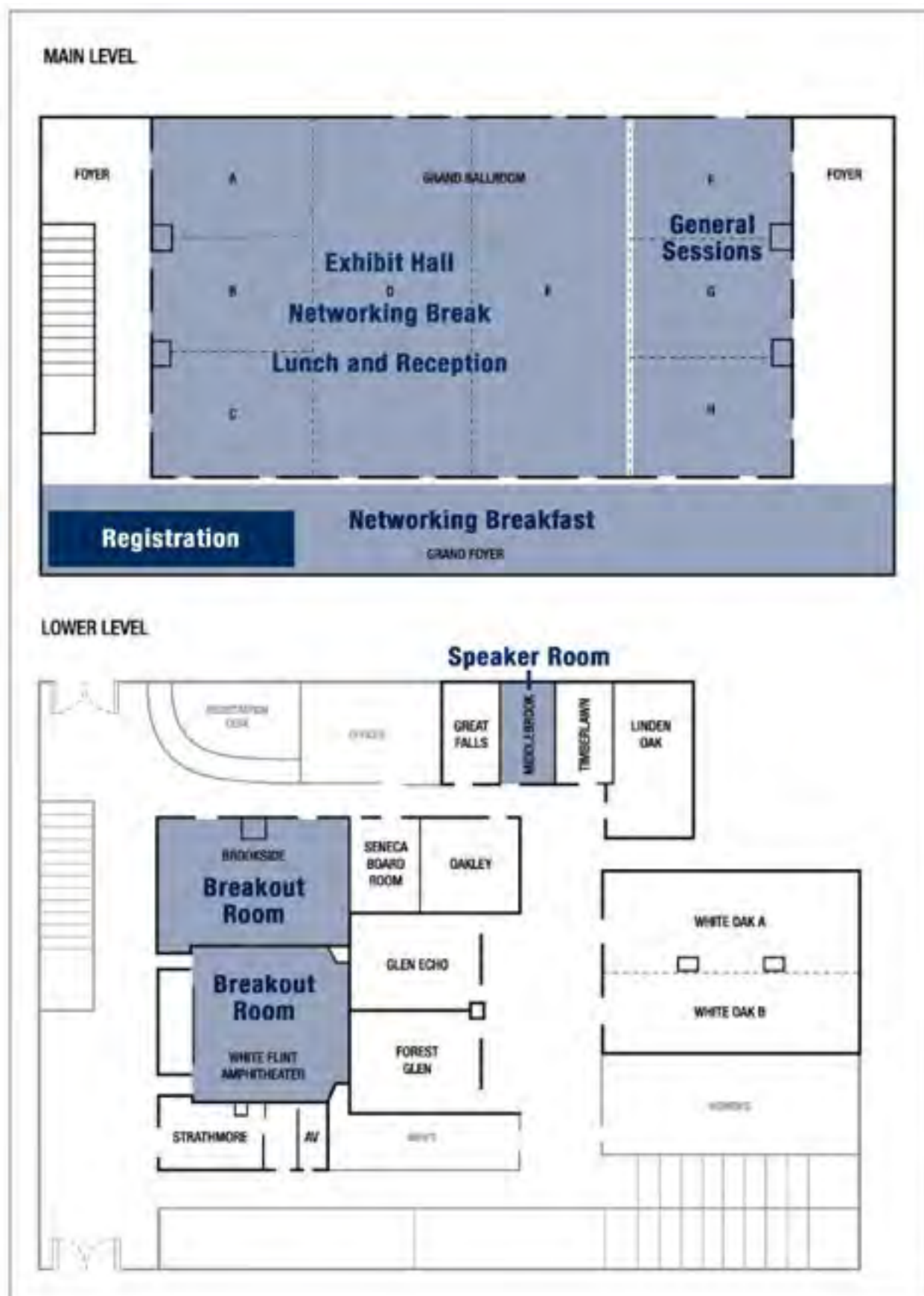
CONCURRENT BREAKOUT SESSIONS

- 12:45 – 1:45 pm **MILITARY TO CIVILIAN TRANSITION WORKSHOP: LESSONS LEARNED AND TIPS ON BEING HAPPIER, MORE SUCCESSFUL, MORE RAPIDLY**
WHITE FLINT AMPHITHEATER
MG Randy Manner, USA (Ret)
Executive Leadership Coach (Prev. Senior Partner, Korn Ferry)
- 12:45 – 2:15 pm **PANEL: INTERNATIONAL VIEWS**
SALONS F-H
Phil Ayrton
NDIA EOD Committee
Moderator
LTC Guy Decker, USA
SME EOD/CIED - Belgium Defense Staff
LTC Constantin Efrim, USA
NATO Counter-IED Center of Excellence
LTC Dirk Futchman, USA
German Army EOD-IED Army Concepts and Capabilities Development Center
CDR Giovanni Modugno, USN
Deep Sea Diver EOD - Italian Navy

2:15 – 3:15 pm	PANEL: HUMANITARIAN MINE ACTION – ADAPTING TO THE CIED THREAT SALONS F-H Dr. Kenneth Rutherford Director, Center for International Stabilization and Recovery, James Madison University <i>Moderator</i> Gerald Guilbert Deputy Director for Programs, Office of Weapons Removal and Abatement, U.S. Department of State Allen Tan Director of Applied Technology, Golden West Humanitarian Foundation, Augmented Reality Training Jordan Wilhelm Director of Operations, Janus Global
3:15 – 3:45 pm	NETWORKING BREAK GRAND BALLROOM FOYER Silent Auction Payment/Pick Up
3:45 – 4:30 pm	COUNTER UXO – ADDRESSING ENVIRONMENTAL IMPACTS SALONS F-H Dr. Herb Nelson Director and Program Manager for Munitions, SERDP and ESTCP Initiatives Dr. Valentine Nzengung Professor, Environmental Geochemistry, University of Georgia
4:30 – 5:15 pm	INNOVATIONS IN INFORMATION TECHNOLOGY FOR UXO SALONS F-H Allen Tan Director of Applied Technology, Golden West Humanitarian Foundation, Augmented Reality Training
5:15 – 5:30 pm	CLOSING REMARKS SALONS F-H Nicole Motsek Executive Director, EOD Warrior Foundation Eugene Squires Senior Partner, Squires & Fulcher, LLC Chair, NDIA EOD Committee
5:30 pm	SYMPOSIUM ADJOURNS

The NDIA has a policy of strict compliance with federal and state antitrust laws. The antitrust laws prohibit competitors from engaging in actions that could result in an unreasonable restraint of trade. Consequently, NDIA members must avoid discussing certain topics when they are together at formal association membership, board, committee, and other meetings and in informal contacts with other industry members: prices, fees, rates, profit margins, or other terms or conditions of sale (including allowances, credit terms, and warranties); allocation of markets or customers or division of territories; or refusals to deal with or boycotts of suppliers, customers or other third parties, or topics that may lead participants not to deal with a particular supplier, customer or third party.

VENUE MAP



BIOGRAPHIES



MICHAEL CARDASH

Former Commander
Israeli National Police Bomb Squad

Michael Cardash, the former deputy head of the Israeli National Police Bomb

Disposal Division served 27 years as a senior bomb technician. During those years he participated in numerous missions defeating IED's and other counter terrorist operations. He commanded bomb disposal units within the border guards and Israeli police, during intense terrorist conflicts gaining experience

investigating and responding to the variety of terror attacks and in particular to suicide bombing devices and incidents.

During his career Michael instructed law enforcement personnel and bomb technicians from around the world. He headed the Israeli police bomb disposal school teaching and guiding bomb technicians, assisted in founding counter

terror security procedures and shared his experience with counter terror operatives around the world.

Michael currently authors the Terrogeance Möbius C-IED reports analyzing and assessing global IED-related technical and tactical intelligence. He also provides advice, guidance and assistance for law enforcement, EOD and counter terror units in understanding, recognizing and responding to the IED threat.



LIEUTENANT GENERAL REYNOLD HOOVER, USA

Deputy Commander, U.S. Northern Command, Vice Commander, U.S. Element, NORAD
U.S. Army

Lieutenant General Reynold N. Hoover is the Deputy Commander,

U.S. Northern Command, and Vice Commander, U.S. Element, North American Aerospace Defense Command at Peterson Air Force Base, Colorado. As Deputy Commander, General Hoover assists the Combatant Commander in anticipating, preparing and responding to threats against North America and within Northern Command's assigned area of responsibility. Additionally, he provides oversight of U.S. Northern Command's Defense Support to Civil Authorities.

General Hoover graduated from the United States Military Academy in 1983 and was commissioned as a Military Police officer. After service as a platoon leader and company executive officer, he transferred to the Ordnance Corps and was trained as an Explosive Ordnance Disposal Officer. In 1988, General Hoover joined the Alabama Army National Guard where he subsequently commanded at the detachment, battalion, task force, and group levels. General Hoover deployed in support of Operation

Enduring Freedom from 2009-2010 where he commanded the Joint Sustainment Command in Kandahar. Most recently, he commanded the 167th Theater Sustainment Command from 2011-2014.

From 2002-2003, General Hoover served as Chief of Staff for the Federal Emergency Management Agency (FEMA). In this role, he was responsible for coordinating the day-to-day operations of FEMA and synchronizing emergency management functions across the interagency. Subsequently, he led FEMA's Office of National Security Coordination from 2003-2005. In 2005, General Hoover was appointed as Special Assistant to the President for Homeland Security. In addition to his role as Special Assistant, he also served as the Senior Director for Nuclear Defense & Continuity Policy on the Homeland Security Council. In this capacity, General Hoover was responsible for developing domestic nuclear defense policy recommendations and coordinated national continuity of government programs and policies.

From 2014-2016, General Hoover served as the National Guard Bureau's Director of Intelligence and Director of Command,

Control, Communications and Computers (C4). In this dual capacity, he provided strategic guidance on intelligence and C4 policy to the Chief of the National Guard Bureau and the Joint Staff, and ensured coordination of intelligence and C4-related matters across the Department of Defense. Prior to his current position, General Hoover served as Mobilization Assistant to the Director of the Defense Intelligence Agency.

General Hoover holds a Bachelor's of Science from the United States Military Academy, a Master's of Arts in Public-Private Management from Birmingham-Southern College, and a Master's in Strategic Studies from the U.S. Army War College. He also holds a Juris Doctorate from The Catholic University of America's Columbus Law School, and is a graduate of Harvard University's National & International Security Seminar. His awards and decorations include the Defense Superior Service Medal, Legion of Merit, Bronze Star, Meritorious Service Medal, Humanitarian Service Medal, and the Master Explosive Ordnance Disposal Badge.



LIEUTENANT COLONEL MATTHEW KUHNS, USA

Battalion Commander
U.S. Army

Lieutenant Colonel Matthew L. Kuhns is a native of Ankeny, Iowa. He

commissioned as a Second Lieutenant in the Ordnance Corps through the Reserve Officer Training Corps (ROTC) upon graduation from Iowa State University in 1998. His previous assignments include: Platoon Leader and Direct Support Maintenance Shop Officer, B Company, 172nd Support Battalion; Material Readiness Officer and Deputy Chief Brigade Materiel Management Center (BMMC), Headquarters and Headquarters Company, 172nd Support Battalion, 172nd Infantry Brigade (Separate), Fort Wainwright, Alaska; Commander, 705th Ordnance Company (EOD), Fort Polk, Louisiana and Mosul, Iraq; Assistant S3 Operations Officer, 71st Ordnance Group (EOD), Fort Carson, Colorado; Response Team Leader and Training Officer, Combined Explosives Exploitation Cell (CEXC), Baghdad, Iraq; Liaison Officer from Combined Joint Task Force Troy (Counter-Improvised Explosive

Device) to Multi-National Corps-Iraq (MNC-I) Counter IED Intelligence Operations Center, Baghdad, Iraq; Officer in Charge, Engineer Explosive Ordnance Clearance Agent Course (E-EOCA), Fort Leonard Wood, Missouri; S3 Operations Officer, 3rd Ordnance Battalion (EOD), Joint Base Lewis McCord, Washington; J3 Operations Officer, Joint Task Force Paladin South (C-IED), Kandahar, Afghanistan; and C-IED Program Integrator, Branch Chief and Deputy Division Chief, Defense Threat Reduction Agency (DTRA), Joint Improvised-Threat Defeat Organization (JIDO), Washington D.C.

From July 2017 to March of 2018, LTC Kuhns served as the Commander of Task Force EOD assigned to United States Forces Afghanistan (USFOR-A) located at Bagram Airfield, Afghanistan in support of Operation Freedom's Sentinel.

His military education includes completion of the Ordnance Officer Basic Course; Combined Logistics Officer Advanced

Course; Combined Arms and Service Staff School; Honor Graduate of the U.S. Navy School Explosive Ordnance Disposal; U.S. Army Command and General Staff College; and National Defense University - Joint Forces Staff College - Joint Professional Military Education Level II. He holds an MA in Management and Leadership from Webster University and a BA in Communications from Iowa State University.

LTC Kuhns' awards and decorations include the Bronze Star Medal (2 Oak Leaf Cluster), Defense Meritorious Service Medal (1 OLC), Meritorious Service Medal (2 OLC), Joint Service Commendation Medal (1 OLC), Army Commendation Medal (1 OLC), Army Achievement Medal (1 OLC), Afghanistan Campaign Medal, Iraq Campaign Medal, Global War on Terrorism Expeditionary Medal, Joint Meritorious Unit Award, Valorous Unit Award (1 OLC), Global War on Terrorism Service Medal, NATO Medal, and the Combat Action, Master Explosive Ordnance Disposal and Air Assault Badges.



HONORABLE JAMES MCDONNELL

Assistant Secretary for Countering Weapons of Mass Destruction
Department of Homeland Security

James F. McDonnell was appointed by President Trump to serve as the Assistant

Secretary for the Department of Homeland Security's (DHS) Countering Weapons of Mass Destruction (CWMD) Office. The office's mission is to counter attempts at an attack against the United States or its interests using a weapon of mass destruction. Before this, McDonnell was acting Assistant Secretary of CWMD and Director of the Domestic Nuclear Detection Office.

McDonnell is a recognized expert in MD-related terrorism. He served in the Navy for 20 years in special operations and counter terrorism. He founded the National Security Programs business unit at Oak Ridge Associated Universities and managed terrorism-related national security activities, including restructuring the technical response by the U.S. to nuclear terrorism threats.

McDonnell has senior executive experience in the federal government and the private sector, where he directed security, police, and other risk management functions. He has served in the Senior Executive Service in DHS, the Department of Energy, and the White House. Following the terrorist attacks of September 11, 2001, McDonnell became the founding director of the Department of Energy's Office of Energy Assurance.

When President George W. Bush announced the creation of DHS, McDonnell moved to the Homeland Security Transition Planning Office within the White House to begin the work of building the Department's infrastructure protection capability. As part of the original executive leadership team at the Department, he was responsible for the initial development and management of today's Infrastructure Protection Office. He formed and directed the development of several national programs at the Department, which

included management of security activities through several high-threat periods, the development of a National Protection Plan, and the implementation of the Buffer Zone Protection Plan.

McDonnell received his Bachelor of Science degree from Regents College, University of the State of New York, and earned a Master of Arts degree from Georgetown University. He also attended Harvard University's Senior Executives in National and International Security program. He has volunteered his time on boards, task forces, and advisory committees, with a focus on homeland security policy and community preparedness and response. McDonnell has published an article on nuclear terrorism response, as well as a book on domestic terrorism incidents. He has contributed to publications addressing corporate security, homeland security, and critical decision-making.

EXHIBIT HALL HOURS

TUESDAY, AUGUST 14

9:00 am – 6:30 pm

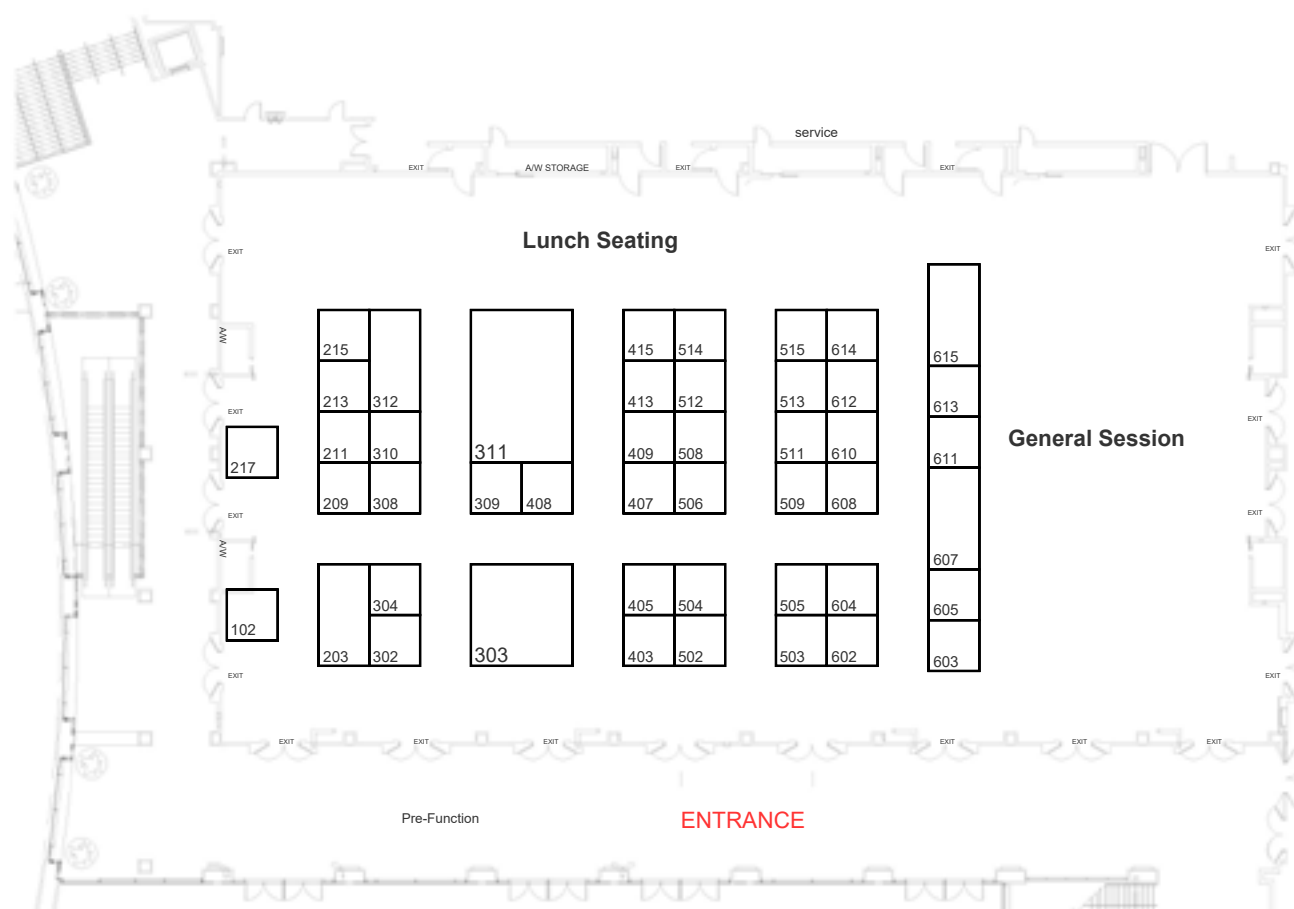
WEDNESDAY, AUGUST 15

9:00 am – 3:00 pm

EXHIBITORS BY BOOTH NUMBER

PATCO Electronics	102	Explotrain, LLC.....	504
Federal Resources	203	Inert Products, LLC.....	505
Mithix Pro	209	Mohawk Electrical Systems, Inc.	506
55th Ordnance Company (EOD).....	211	RE2 Robotics.....	508
United States Bomb Technician Association.....	213	Alluviam, LLC.....	509
IABTI.....	215	Panasonic	511
QSA Global, Inc.	217	National Association of Ordnance Contractors	512
Sierra Nevada Corporation	302	Terrogence (a Verint Company)	513
ADS	303	Leidos.....	514
QinetiQ North America	304	Vidisco, Ltd	515
Optics1.....	308	908 Devices	602
Point One USA, LLC	309	Bren-Tronics, Inc.	603
Black Diamond Advanced Technology.....	310	Endeavor Robotics	604
Darley Defense	311	Honeywell (RAE Systems)	605
Roboteam	312	NSWC Indian Head EOD Technology Division.....	607
R3 Strategic Support Group	403	Bauer Compressors, Inc.	608
Scanna MSC, Inc.	405	Chemring Ordnance, Inc.....	610
CEIA USA	407	The Johns Hopkins University	
Med-Eng	408	Applied Physics Laboratory	611
Red Lotus Technologies	409	EOD Warrior Foundation.....	612
Mistral, Inc.	413	Avatar Partners, Inc.....	613
Biosecumax, Inc.....	415	Golden Engineering	614
DHS Office for Bombing Prevention	502	Innervision Security / Novo DR	615
L3 Insight Technology	503		

EXHIBIT HALL MAP



EXHIBITOR DESCRIPTIONS

55TH ORDNANCE COMPANY (EOD) 211

The 55th OD CO (EOD) conducts EOD operations to reduce or eliminate the hazards of munitions and explosive devices. On order, conducts defense support of civil authorities (DSCA) by providing explosive ordnance disposal (EOD) support to federal, state, and local LE agencies.

908 DEVICES 602

MX908TM increases mission support with unmatched flexibility and trace detection power for responders in priority drug, chemical, explosive and high-threat hazmat scenarios. Leveraging the power of HPMS, MX908 lightens the overall technology burden by displacing other less selective technologies from the response toolkit.

ADS 303

ADS, Inc. is a leading value-added logistics and supply chain solutions provider that proudly serves all : ADS, Inc. provides equipment, procurement, logistics, and supply chain solutions. We offer access to the largest product and service selection, the broadest array of procurement and contract options, and world-class expertise and support to assist you—every step of the way.

ALLUVIAM, LLC 509

Adopted by the US Military, NATO, coalition partners and other civilian, intelligence and military agencies, HazMasterG3 puts state-of-the-art HME/IED decision support in the hands of those that need it most. HazMasterG3 is the only handheld CBRNE/ HME Decision Support System to have earned U.S. DHS (Department of Homeland Security) certification and designation as an approved anti-terrorism technology.

AVATAR PARTNERS, INC.

613

AVATAR Partners Inc. (API) is a women-owned small business that specializes in Simplifying Complex Systems for the Warfighter. Our solutions include Software, Logistics, Hardware and Training solutions for the Government. Innovation, flexibility and cost-effective solutions are what we do best. We have a 10 year track record of providing superior solutions on- time and within budget, ensuring highly satisfied customers.

BAUER COMPRESSORS, INC.

608

BAUER COMPRESSORS is recognized as the world's foremost innovative designer and manufacturer of high pressure systems. BAUER's Breathing Air Compressor Systems and Components are the gold standard for fire-fighting, diving and military applications where reliable ultra-pure breathing air is required to maintain life safety. Each product within our portfolio is specifically designed for the end user application.

BIOSECUMAX, INC.

415

BIOSECUMAX Inc. has been developing revolutionary ChemiFluorescence sensor and platforms that can detect hazardous substances in order to adapt into the volatile market trends and new emergence of technologies since 2013. Based on Vision bio-biometric technology and ultra-sensitive photochemical sensor technology, we will supply high-tech safety equipment needed for homeland security market and public safety market in a timely manner to meet customer's needs.

BLACK DIAMOND ADVANCED TECHNOLOGY

310

Black Diamond Advanced Technology (BDATech) is a Veteran-Owned Small Business headquartered in Chandler, AZ and a demonstrated leader in the tactical computing and communication systems industry. Our focus is the Dismounted Operator and providing with innovative, trusted technology to ensure mission success. We specialize in customized hub systems, engineered to withstand any environment, and control a variety of missions. Because when it matters most you want something Built. Tested. Proven.

BREN-TRONICS, INC.

603

Supporting warfighter/EOD teams for 45+ years, all made in the US Li-Ion batteries for every major military robot system, small hand-held robots to larger robotic platforms on ground, air and sea Tactical chargers using mains, solar, vehicles (-40C / 80C) High power 24V Li-Ion batteries to start/power vehicles (6T) + high energy batteries for mobile/fixed silent watch applications (>3 kWh) Accept no substitute, if you want a "BB-2590/U" there can be only one choice. Everything else is an imitation.

CEIA USA

407

CEIA Ground Search Metal Detectors provide overall superior performance in the areas of detection distance, soil compensation capability and immunity to external interference. CEIA USA provides nationwide sales, service and customer support to customers in North America. Dynamic solutions are the foundation of CEIA USA's commitment to customer satisfaction. For more information, visit www.ceia-usa.com.

CHEMRING ORDNANCE, INC.

610

Chemring Ordnance, is located in Perry, FL and is subsidiary of Chemring Group, is a center of excellence for the design, development and production of Counter-IED Products (APOBS), ordnance, pyrotechnic products, and other munitions components for military, homeland security, and first responders. CORContacts@ChemringOrdnance.com

DARLEY DEFENSE

311

Since 1908, Darley has been dedicated to serving the world's Fire & Emergency Services and Defense organizations. Darley remains a family owned and operated business with corporate headquarters in Illinois. In 2007, we were awarded the first of two major DLA contracts under the TLSP for Fire & Emergency Services Equipment (F&ESE) and Special Operational Equipment (SOE). Equipment can be ordered through TLS, GSA, DoD FEDMALL, or open market. Visit www.darleydefense.com to view our Capabilities.

DHS OFFICE FOR BOMBING PREVENTION 502

The Office for Bombing Prevention (OBP) leads the Department of Homeland Security's (DHS) efforts to implement the National Policy for Countering Improvised Explosive Devices (National Counter-IED policy) and enhance the nation's ability to prevent, protect against, respond to, and mitigate the use of explosives against critical infrastructure; the private sector; and federal, state, local, tribal, and territorial entities.

ENDEAVOR ROBOTICS 604

Endeavor Robotics is the world's largest provider of tactical unmanned ground vehicles, delivering more than 6,500 robots to customers in over 40 countries. We design and build the most trusted, rugged, easiest-to-operate robots used to safeguard life and property around the world, whatever the mission. Every day, our products operate in areas of conflict, assist law enforcement agencies, and respond to natural disasters to help save lives.

EOD WARRIOR FOUNDATION 612

The EOD Warrior Foundation is a 501(c)(3) non profit organization that was established through the March 1, 2013 merger of the EOD Memorial Foundation and the Wounded EOD Warrior Foundation to streamline and increase our capacity to support the EOD community.

EXPLOTRAIN, LLC 504

Since 1999, Explotrain's patented technologies have been used to provide more effective training in EOD, C-IED, K9 and Battlefield Effects. Our non-pyrotechnic Blast Simulators and Inert Functional IED training aids provide a safe, realistic, and cost effective solution for creating functional training environments.

FEDERAL RESOURCES 203

Federal Resources offers safety and homeland security products backed by the deep product knowledge you need. Federal Resources is a GSA Contract holder and DOD EMail Contract holder, who is dedicated to providing best in breed products that meets all customers expectations. Industries we serve are Industrial, Fire/EMS, Military, & Law Enforcement. Federal Resources team strives to meet mission critical delivery requirements allowing our users to execute their mission.

GOLDEN ENGINEERING 614

Golden Engineering manufactures battery powered portable X-ray generators. Our generators are used for EOD applications by all branches of U.S. military, various government agencies, and municipal bomb squads. We recently redesigned all four models reducing their size and weight and increasing their user interface user interface capabilities. Come see our new products at booth 614.

HONEYWELL (RAE SYSTEMS) 605

RAE Systems by Honeywell innovates, designs and manufactures gas sensors and radiation detectors. RAE Systems' rugged, proven, and integrated multi-gas and radiation detectors meet all military standards and specifications. Easy to maintain in the field and with a global infrastructure for comprehensive support, our products operate on an open platform and can integrate with other third-party systems. Our real-time safety and threat detection systems helps save lives and maintain safety.

IABTI 215

The International Association of Bomb Technicians & Investigators (IABTI) is an independent, non-profit, international professional association formed to counter the criminal use of explosives. Our goal is achieved through the exchange of information, expertise, and training: in-service training & technology expos, bi-monthly magazine & annual EOD Equipment Buyer's Guide, certification as Certified International Post Blast Investigator, Scholarships, Accidental Death Assistance, and much more.

INERT PRODUCTS, LLC 505

Inert Products, LLC provides Law Enforcement, Homeland Security and the United States Department of Defense with extremely durable, highly realistic inert training aids used in training against terrorist threats. Located in Scranton, PA, Inert Products, LLC produces and supplies support materials used by security forces in training to recognize, respond to, and mitigate the threat of explosives & terrorism.

INNERVISION SECURITY / NOVO DR

615

InnerVision Security serves the extensive security industry with advanced technology bringing solutions “into view” for the many potential threats we face each day throughout the world. Committed to providing the best solutions for the men and women who expose themselves to these dangers keeping our country, borders, buildings, and families safe.

THE JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY

611

The Johns Hopkins University Applied Physics Laboratory (APL) presents the NAVSEA Advanced EOD Robotic System (AEODRS) program, encouraging widespread industry participation to fulfill the EOD mission through integration of various capability modules via a common system architecture, system testbed for test development and compliance, and representative integration platforms for risk reduction.

L3 INSIGHT TECHNOLOGY

503

L3 Insight Technology is a global leader in the development and production of advanced night vision and electro-optical technology and systems for the U.S. military, federal agencies, public safety and sporting communities, and international markets. Insight Technology provides the most extensive portfolio of products supporting the warfighter, offering all essential systems to enable them to accurately see, maneuver, locate, target and fire during the day, at night or in adverse weather.

LEIDOS

514

Leidos is a science and technology solutions leader working to address some of the world’s toughest challenges in national security, health, and engineering. Supporting vital government and commercial missions, we develop innovative solutions to drive better outcomes, and defend critical infrastructures from ‘new world’ threats. For more information, visit www.leidos.com.

MED-ENG

408

All branches of the U.S. military trust Med-Eng bomb suits for life-saving protection against Improvised Explosive Devices (IEDs) and other blast threats, while Med-Eng suits, robots, blast sensors and specialized tools are trusted in 100 countries worldwide. Med-Eng is a brand of the Safariland Group.

MISTRAL, INC.

413

Mistral Security, Inc. serves as a “bridge” between the requirements of the Department of Homeland Security, law enforcement agencies and private sector security with innovative, relevant and ready solutions for the challenges faced while out in the field. Continuous analysis of capability gaps and existing technologies enables MSI to stay ahead of the problems faced by these markets today, tomorrow and into the future.

MITHIX PRO

209

Mithix Pro LLC is a SDVOSB US Business established in 2007. We manufacture tools, equipment, kits and custom kit solutions for EOD, Bomb Squads, Special Forces, Combat Engineers, Demining, Recon and other Forward Operators. Mithix Pro Equipment is used for search, identification, remote and semi-remote manipulation, render-safe, and disablement of IEDs, booby-traps, landmines, HAZMAT Materials and other hazardous devices as well as survival, safety, rescue and recovery operations.

MOHAWK ELECTRICAL SYSTEMS, INC.

506

Working from customer specifications, Mohawk Electrical Systems, Inc. combines precision manufacturing capabilities with quality components to produce custom, basic or multi-stage assemblies used in the defense, oil and gas, pyrotechnics, instrumentation and mining industries. Core Products include: Bridgewire and Ordnance Products Electromechanical Assemblies Cable and Harness Assemblies Molded Elastomeric Products M18A1 & M68 Claymore Weapon Systems ISO 9001:2015

NATIONAL ASSOCIATION OF ORDNANCE CONTRACTORS

512

NAOC is an industry trade association representing 86 companies performing services to address munitions and explosives of concern (MEC). NAOE members provide the following services: MEC detection, management and disposition; construction support and removal actions; site characterizations and investigations; geophysical surveying (terrestrial and aquatic) and data analysis; environmental sampling and data analysis; regulatory coordination; and project planning and reporting documents.

NSWC INDIAN HEAD EOD TECHNOLOGY DIVISION 607

The Indian Head EOD Technology Division develops and delivers Explosive Ordnance Disposal (EOD) technology, knowledge, tools and equipment and their life cycle support to meet the needs of the Department of Defense, combatant commanders and our foreign and interagency partners, and supports the Executive Manager for EOD Technology and Training.

OPTICS1 308

Optics 1 is a global leader in full-service state-of-the-art design and production of electro-optical products, systems, and sensors. We specialize in the design of compact, high-performance electro-optical systems including visual augmentation systems, laser range finder systems, and long-range precision targeting and observation devices. Optics 1 is able to provide unmatched first-class electro-optical systems for warfighter and law enforcement missions.

PANASONIC 511

Powerful, Rugged and Wireless. The wide variety of form factors available from Panasonic rugged and reliable mobile computers and tablets are designed to survive the rigors of the real-life business world.

PATCO ELECTRONICS 102

PATCO Electronics, division of Creating Technology Solutions LLC, is a leading-edge designer of custom rechargeable Lithium Ion (Li-Ion) batteries, chargers and engineered power management solutions. PATCO's 294-Watt Hour, 10.2 Amp Hour BB-2590/U battery, NSN 6140-01-653-1517, is NAV SEA S9310 safety tested, approved for use on military and first responder EOD robotic platforms. PATCO is an EDWOSB/WOSB certified company and all products are manufactured here in the United States of America.

POINT ONE USA, LLC 309

Point One is an SDVOSB dedicated to providing the highest quality training, services and products in the most comprehensive manner with superior results. Decades of experience in the SOF and EOD communities within joint, multi-agency, and national level environments ensures we are the best choice to provide the services offered.

QINETIQ NORTH AMERICA 304

QinetiQ North America (QNA) provides cutting-edge technology and revolutionary products to the defense, security and military markets. Our product offerings include tactical land vehicle and aircraft protection, sensors to protect soldiers, unmanned robots in a variety of sizes and with varying capabilities and power and control systems. Customers rely on our products to enhance security, aid in personal safety, streamline operations, increase situational awareness and improve efficiencies.

QSA GLOBAL INC. 217

QSA Global, Inc., manufacturer of OpenVision™ live-video x-ray systems, has a worldwide reputation for quality, reliability and safety.

OpenVision™ achieves real-time inspection and investigation of unattended items and suspicious situations. OpenVision™ is lightweight and flexible, enabling mission specific configurations; reducing risk while investigating potential threats and is deployable in hand-held or robot equipped mode in under two minutes.

R3 STRATEGIC SUPPORT GROUP 403

R3 Strategic Support Group, Inc. (R3) is an agile SDVOSB that provides innovative strategic solutions across a broad spectrum of government and commercial domains. Our principal mission areas include Counter-IED; Explosive Ordnance Disposal (EOD); Asymmetric and Irregular Warfare; Expeditionary and Joint Operations.

RE2 ROBOTICS 508

RE2 Robotics develops robotic manipulator arms that enable robots to better interact with the world – whether on the ground, in the air, or underwater. RE2 designs robust modular manipulators and humanlike dual-arm robotic systems with easy-to-use imitative controls that can be easily integrated onto a variety of platforms and enable personnel to perform dangerous and complex tasks at a safe distance. Learn more at www.resquared.com or email info@resquared.com.

RED LOTUS TECHNOLOGIES, INC. 409

Red Lotus Technologies, Inc. is a product design and development company based in Santa Clara, California. We build Augmented Vision products to help protect human life. As IEDs become more complex, effective handheld detection skill becomes essential. Our visual feedback product, VAST, automates the assessment of handheld detection skill for IEDs and Landmines, it is quick and easy for instructors to “see” how good or bad an operator is. www.redlotustech.com

ROBOTEAM 312

Roboteam designs, develops and manufactures cutting edge, user-oriented, multi-purpose, unmanned platforms and controllers for Defense, Law Enforcement and Public Safety missions. We created a line of lightweight, fast deployable systems that deliver technological and functional breakthroughs for tactical purposes with unmatched reliability. Among our customers are top units within the US Military, Special Forces, EOD units and SWAT teams as well as other elite units around the globe.

SCANNA MSC, INC. 405

Scanna MSC, Inc. is a worldwide manufacturer and supplier of portable x-ray systems for defense and security applications. Our specialisation is integrating and customising x-ray imaging panels and components into highly reliable software controlled x-ray imaging solutions that work with Golden generators. Our Range Of Portable X-rays Include Scanx Scout CR Scansilc DR systems. The new Scansilc systems combine solid state flat panel amorphous silicon technology with fast x-ray acquisition .

SIERRA NEVADA CORPORATION 302

Sierra Nevada Corporation (SNC) provides customer-focused solutions in the areas of aerospace, aviation, electronics, and systems integration, with applications including telemedicine, navigation systems, threat detection and security, and infrastructure protection. Founded in 1963 and headquartered in Nevada, SNC has a global workforce supporting its customers. www.SNCorp.com / EWR@sncorp.com

TERROGENCE (A VERINT COMPANY) 513

Founded in 2004, Terrogeance is a global pioneer and leader in the field of Web Intelligence (WEBINT). For over 14 years, Terrogeance (a Verint Company) has been specializing in delivering targeted and actionable intelligence in fields such as Terror and Organized Crime, Cybercrime, Improvised and Homemade Explosive (IED and HME), and more. Using its 60+ in-house Expert Analysts, Terrogeance delivers a unique suite of Counterterror Intelligence Reports to Government and LEA customers globally.

UNITED STATES BOMB TECHNICIAN ASSOCIATION 213

The Mission of the United States Bomb Technician Association is to assemble a community of operators, academics, equipment suppliers and innovators and provide a forum for them to share resources, ideas, and experiences in order to establish a network for collaboration in current and future endeavors to strengthen the community and enhance public safety.

VIDISCO, LTD 515

Vidisco's portable digital X-ray systems offer the optimal solution when dealing with modern threats. Each of our ruggedized solutions can be carried by a single bomb tech into the roughest terrain, providing fast and safe operation and enabling informed decision making on the spot. Vidisco's Advantages: - A Full robot integration -User focused and intuitive operating software with a single capture click and one touch filters -Plug & Play solutions For more details contact us: security@vidisco.com

THANK YOU TO OUR SPONSORS



SIERRA NEVADA CORPORATION

PREMIER SPONSOR

Sierra Nevada Corporation (SNC) is a trusted leader in solving the world's toughest challenges through advanced engineering technologies in Space Systems, Commercial Solutions, and Defense and National Security.

SNC delivers customer-focused technologies and best-of-breed systems integrations in the aerospace and defense sectors. With applications including navigation and guidance, communication and surveillance systems, electronic warfare, aircraft systems and telemedicine, SNC provides state-of-the-art solutions to military and commercial customers around the world.

The drive to transform humanity through technology and imagination has fueled SNC's steady expansion from its headquarters in Nevada to 33 locations worldwide. SNC is a team of nearly 4,000 people—from scientists and cybersecurity experts to software engineers and former military leaders—united in support of customer needs.

SNC has been honored as a Tier One Superior Supplier for the U.S. Air Force, consistently ranks among America's fastest growing companies, and was selected to represent the commercial space industry before the newly formed National Space Council as one of the most innovative U.S. companies in space.

Founded in 1963 and headquartered in Sparks, Nevada, SNC operates under the leadership of owners, CEO Fatih Ozmen and President Eren Ozmen. For more than 50 years, customers have turned to SNC for its technical expertise and reputation for delivering results. SNC's impressive workforce surpasses the status quo by sourcing the best systems and talent, and reliably beating timelines and budgets.

Anchored by our heritage, we dream without limits and work to empower the next generation of engineers and innovators so we can all realize a better, safer world.



FEDERAL RESOURCES

ELITE SPONSOR

Federal Resources is a single source provider of customized, integrated solutions teams need to successfully complete critical mission assignments. With more than three decades of specialized experience, coupled with industry connections and trusted partnerships, FR helps the military, first responders and organizational professionals equip, train and maintain every component of their next mission, program or project.

Delivering comprehensive, mission-based solutions, Federal Resources serves the vast global military and government markets facing critical defense developments and other challenges. Using FR's advanced proprietary technology, a selection of top-notch vendor partners enjoined with a skilled corps of training professionals, Federal Resources delivers success. On time and on budget.

With hundreds of trusted vendor relationships around the globe, Federal Resources excels in locating and delivering the exact tools teams require to proceed, quickly and efficiently. FR personnel stays informed of the most advanced, relevant equipment made available from top manufacturers. Our company's reputation as cutting-edge problem-solvers is unsurpassed. Let us guide you in your quest for the best possible solution and every component to support it.

Serving warriors and heroes in multiple markets, Federal Resources proudly supports those who protect us all.

NOTES

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REGISTER TODAY



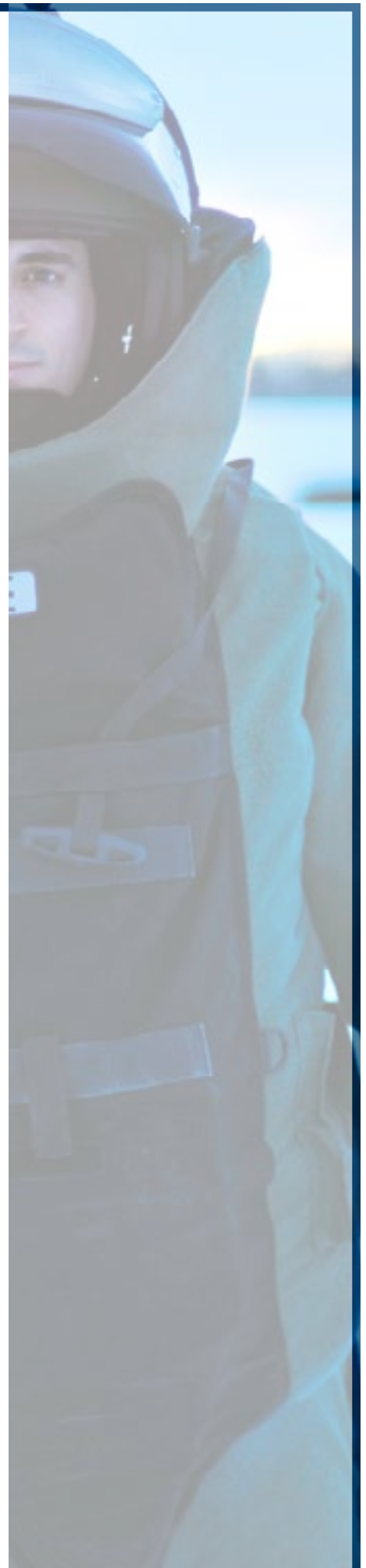
ARMY SCIENCE & TECHNOLOGY SYMPOSIUM SHOWCASE

August 21 – 23, 2018

Walter E. Washington Convention Center

Washington, DC

NDIA.org/Army-Science





UNCLASSIFIED

Global EOD Symposium & Exhibition 2018



Army EOD Future Requirements



Brigadier General Heidi J Hoyle
Chief of Ordnance
Combined Arms Support Command and the
Sustainment Center of Excellence
Fort Lee, Virginia and Fort Jackson, South Carolina

Explosive Ordnance Disposal (EOD) Forces

Organizational Structure:

- FBI JTTF** (XXXXXX)
- NORTHCOM** (XXXXXX)
- EOD** (x 8)
- CBRNE** (++)

Strategic Offices and Headquarters (XXXXXX)

Reachback

Integration with Space Operations

Operational Flow:

1. First-seen ordnance recovered by EOD team, initial exploitation completed, moved via semi-autonomous/autonomous aerial system
2. Consolidated explosive ordnance and materiel moved via echeloned aerial systems
3. Expeditionary Technical Exploitation Center (ETEC) conducts next level exploitation, processes and disseminates to DIV to support further operations
4. EOD GP ETEC processes & disseminates to JTF, facilitates fusion with strategic reach back for additional exploitation, increases situational understanding of the threat.
5. Fusion of intelligence informs both General Purpose and Special Operation Forces planning cycles, directly enabling intelligence based operations via WIN-T solutions

EOD Forces Enable Defense Support to Civil Authorities

1. Support NORTHCOM with capability to enable Strategic CWMD Ops for USG
2. Daily support to Civil Law Enforcement for explosive ordnance and IED remediation

EOD Forces Enable the Warfighter to Conduct Multi-Domain Operations

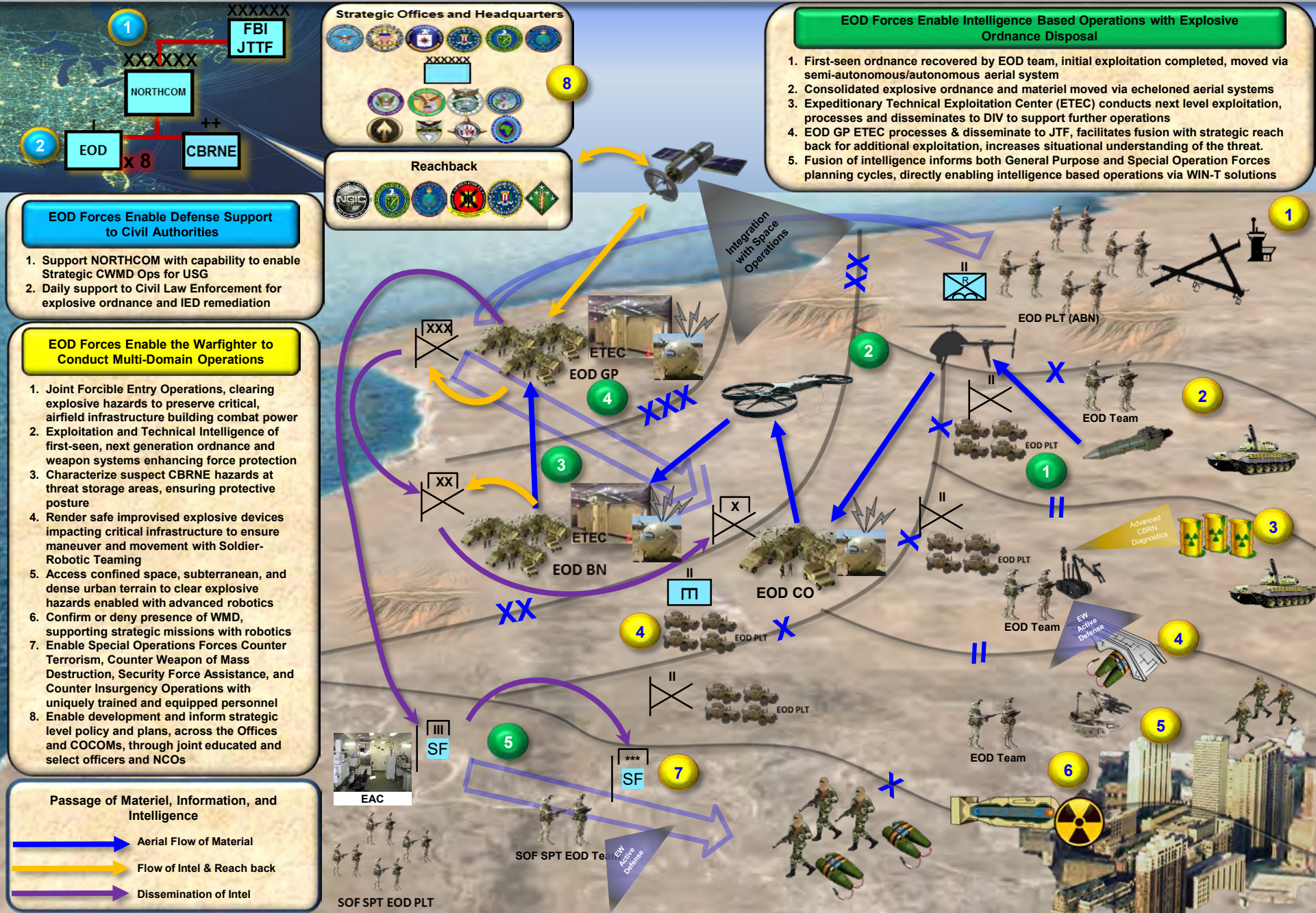
1. Joint Forcible Entry Operations, clearing explosive hazards to preserve critical, airfield infrastructure building combat power
2. Exploitation and Technical Intelligence of first-seen, next generation ordnance and weapon systems enhancing force protection
3. Characterize suspect CBRNE hazards at threat storage areas, ensuring protective posture
4. Render safe improvised explosive devices impacting critical infrastructure to ensure maneuver and movement with Soldier-Robotic Teaming
5. Access confined space, subterranean, and dense urban terrain to clear explosive hazards enabled with advanced robotics
6. Confirm or deny presence of WMD, supporting strategic missions with robotics
7. Enable Special Operations Forces Counter Terrorism, Counter Weapon of Mass Destruction, Security Force Assistance, and Counter Insurgency Operations with uniquely trained and equipped personnel
8. Enable development and inform strategic level policy and plans, across the Offices and COCOMs, through joint educated and select officers and NCOs

Passage of Materiel, Information, and Intelligence

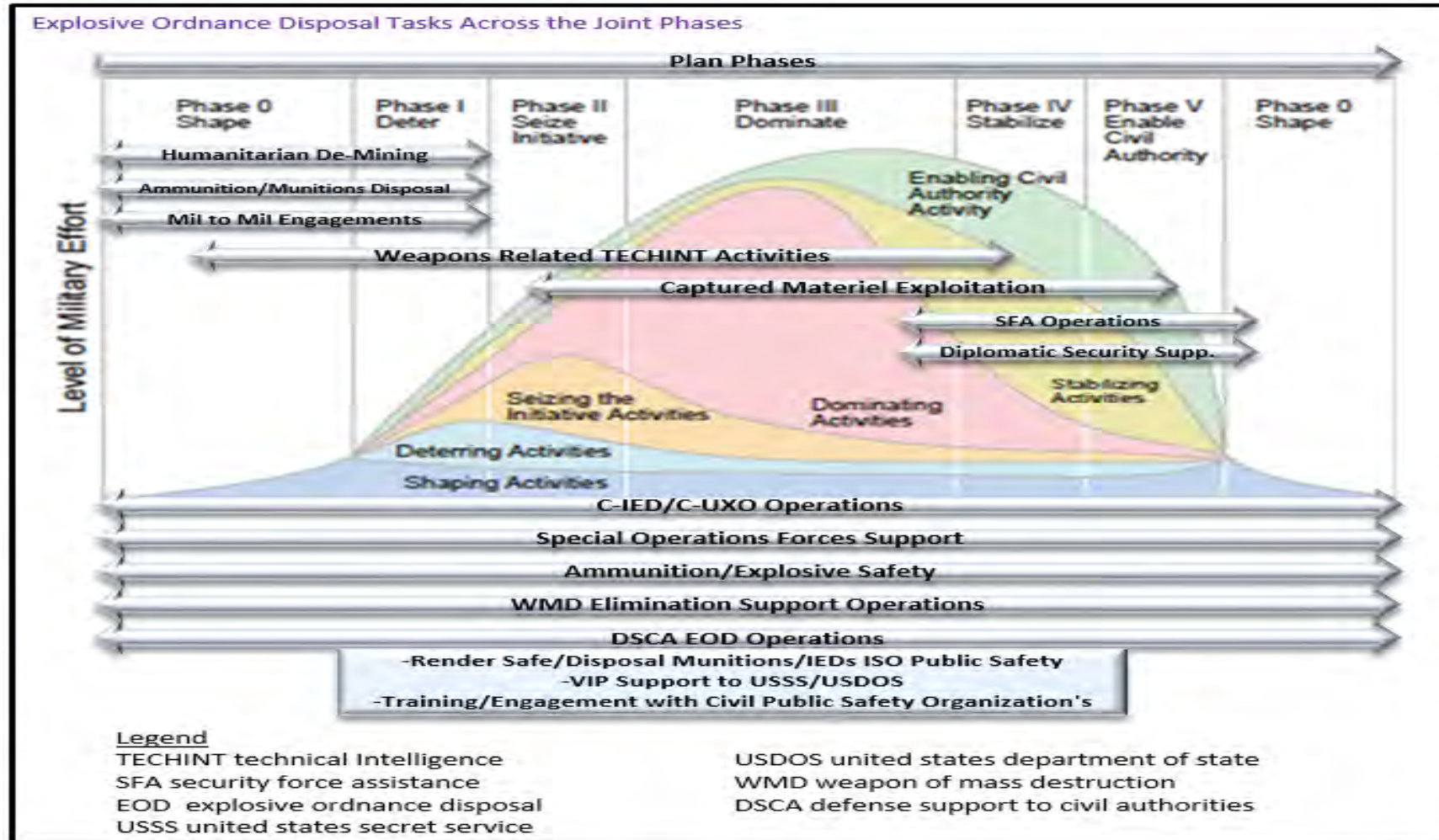
- Aerial Flow of Material** (Blue arrow)
- Flow of Intel & Reach back** (Yellow arrow)
- Dissemination of Intel** (Purple arrow)

Units and Assets:

- EAC** (Explosive Ordnance Activity Center)
- SOF SPT EOD Team** (Special Operations Forces Special Operations Team Explosive Ordnance Disposal)
- EOD BN** (Explosive Ordnance Disposal Battalion)
- EOD CO** (Explosive Ordnance Disposal Company)
- EOD PLT** (Explosive Ordnance Disposal Platoon)
- EOD Team** (Explosive Ordnance Disposal Team)
- EOD PLT (ABN)** (Explosive Ordnance Disposal Platoon (Autonomous/Unmanned))
- ETEC** (Expeditionary Technical Exploitation Center)
- EOD GP** (Explosive Ordnance Disposal General Purpose)
- Advanced CBRN Diagnostics**
- EW Active Defense** (Electronic Warfare Active Defense)

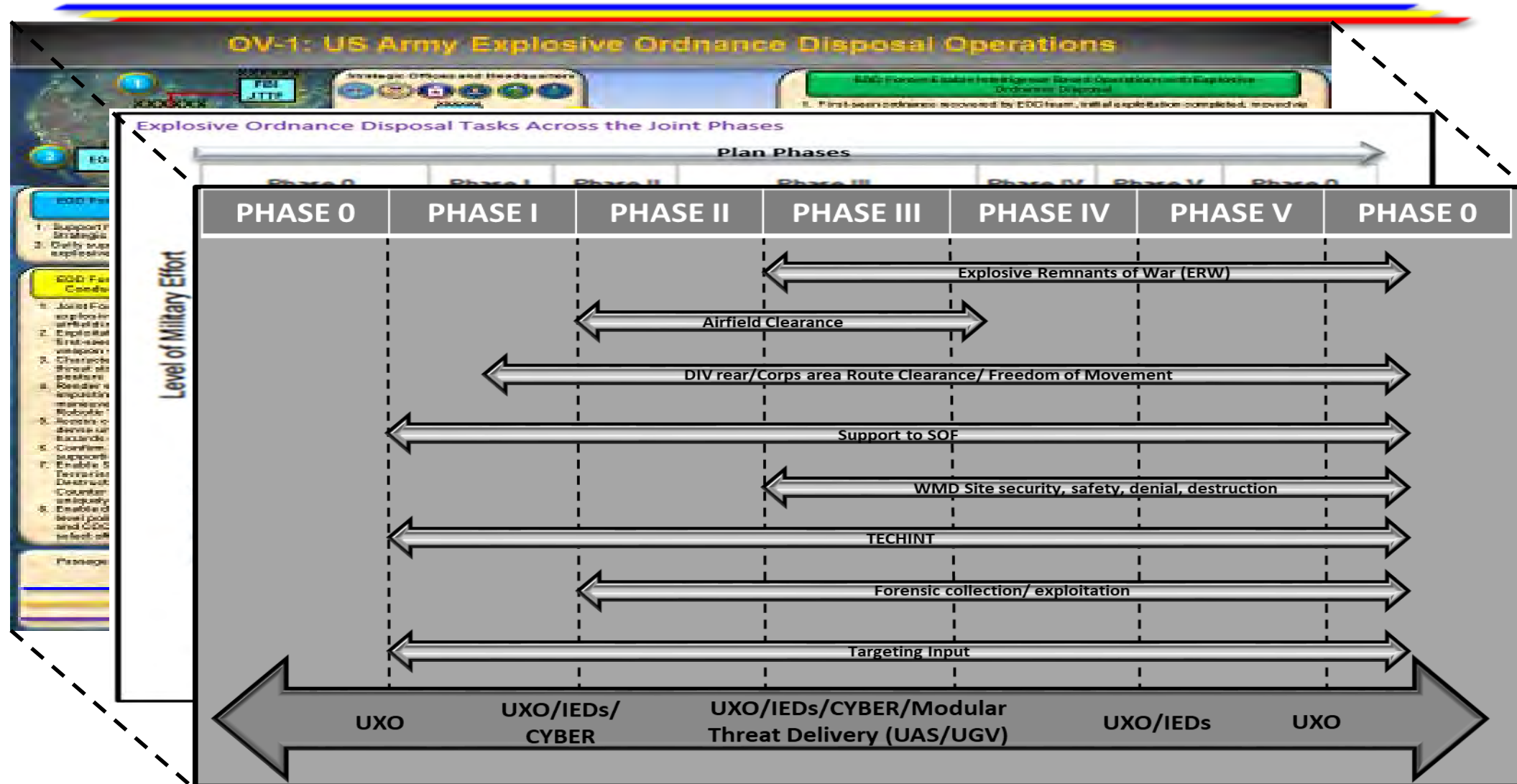


EOD Tasks across the Joint Phases



JP 3-42

EOD Operations in LSCO



Army EOD operations that enable Large Scale Combat Operations are resident at echelon and build capacity throughout the phases of Joint operations.

Robotics

Common Robotics System (CRS) / Man Transportable Robotic System (MTRS)

	<div>Heavy</div> <div><u>RONS</u></div>	<div>Medium</div> <div><u>TALON 4</u></div>	<div>Light</div> <div><u>SUGV 310 / PACKBOT 510</u></div>
Legacy	<ul style="list-style-type: none"> • 26 year old technology • Obsolete, no longer manufactured • Not Cyber Survivable • Non Interoperability Profile (IOP) Compliant 	<ul style="list-style-type: none"> • 15 year old technology • 15 years operational wear and tear • Non-Standard Equipment • Not Cyber Survivable • Non IOP Compliant 	<ul style="list-style-type: none"> • 9 year old technology • 9 years of operational wear and tear • Non-Standard Equipment • Not Cyber Survivable • Non IOP Compliant
Future	<div><u>CRS-Heavy</u></div> <ul style="list-style-type: none"> • Enhanced tactical mobility, lift (100 lbs full extension), arm reach (9+ FT) • VBIED prosecution • Personnel recovery • IOP Compliant/Universal Controller • Multi-robot Operator Control Unit (MOCU) compatible • Mission Modular Payloads 	<div><u>MTRS Inc II</u></div> <ul style="list-style-type: none"> • IOP Compliant/Universal Controller • Multi-robot Operator Control Unit (MOCU) compatible • Mission Modular Payloads • 2 x man transportable • Compatible with DR SKO sensor suite 	<div><u>CRS-Individual</u></div> <ul style="list-style-type: none"> • Less than 25 pounds, supports Airborne and dismounted operations (backpackable) • IOP Compliant/Universal Controller • Multi-robot Operator Control Unit (MOCU) compatible • Mission Modular Payloads
Electromagnetic Environmental Effects (E3) Compliant, CBR and Cyber Survivable			



Notional Representation



UNCLASSIFIED



Notional Representation



Enhanced Robotic Payload (ERP)

Working Action

- **Problem:** Legacy and emerging program of record robotic platform organic payloads provide little to no new capabilities for EOD teams tasked with the detection and render safe/disposal of Explosive Ordnance (EO) at safe standoff.
- **Purpose:** Provide enhance capabilities through interoperability profile (IOP) compliant payloads to (1) increase lift capacity and dexterity, (2) detect hidden or camouflaged EO through multi-spectral imaging, (3) render safe surface laid or suspended EO through selectable and accurate disruption, (4) limit Soldier cognitive burden through autonomous Obstacle Avoidance and Digital Modeling (OA&DM), (5) provides dynamic networking for Beyond Line of Sight (BLOS) operation and 360 degree ISR capability.

Capabilities

- Dual Arm Dexterity
- Multispectral Overlay Camera
- Obstacle Avoidance & Digital Modeling
- Extended Range / Mesh Networking
- Multi-Shot Disrupter / Fine Precision Aiming Module



ACAT Level: IV

Proponent: SCoE/TCM-EOD

Current Requirements Documents: April 2018 – AROC Functional Council staffing resulted in a G8 directed requirement to split the staffed CDD into 3 separate Capability Production Documents (CPD): ERP-RS (Multi-shot Disrupter, Precision Aim Module, Dual-Arm Manipulation); ERP UGV (OA, DM, Extended Range/Mesh Networking, Multi-spectral Imaging); and ERP-UAS (Tethered UAS – ISR, BLOS, ECM) and return to HQDA for continued AROC staffing to compete in POM 21-25.

Background

- The ERP is a suite of modular IOP payloads intended to be integrated onto the Talon 5A, MTRS Inc II, and CRS(H) systems. Payloads will include: a Multi-Shot Disruptor, Highly Dexterous Dual Arm Manipulator, Multi-Spectral Overlay Camera, OA&DM, Extended Radio Range and Mesh Networking, and a Tethered UAS.
- September 2016 – Robotic Enhancement Program (REP) 16.1 Limited Objective Experiment (LOE) conducted for OA&DM – technology proven on flat ground; needs development for rough terrain and improved maps and data reduction
- September 2016 – REP 16.1 LOE conducted for Extended Range and Mesh Networking – validated the concept that employing mobile tactical radio relay NLOS communications environments such as urban terrain on flat terrain only; more development needed for tactical environments.
- June 2017 - REP 16.2 LOE conducted using a dual arm dexterity working prototype on a Standardized Talon.

Way Ahead

Equipping EOD forces with current robotic technologies as programs of record, incorporated into Army Sustainment systems. Materiel approach is modular mission payloads, enabling a greater range of capabilities at the lowest cost on common platforms, envisioned for used by all branches of the Army (including Marine Corps) and supported by Army Maintenance systems.



Soldier Protection, Render Safe and Disposal Equipment

Legacy

16-Year Old Theater Provided Equipment / Outdated technology Non-Standard Equipment EOD TOOLS/ Non-existent capability

Future

RENDER SAFE SETS, KITS OUTFITS (RS SKO)

- EOD Render safe and disposal equipment
- Enables Airborne and dismounted EOD operations
- Power management and harvesting
- X-ray source and digital imager
- Trace CB and Drug confirmatory identification
- Localized threat and back packable Electronic Counter Measures (ECM)
- Multi-purpose firing device



Light Weight
Demolition
Device (LWDD)



Team Support
Power Management



Lightweight ECM
Capabilities



Lightweight
Imager



Handheld Mass
Spectrometry
Trace Detection



Gamma/Neutron
Detection/ID
Capability



Binocular
Night Vision
Device



Lightweight X-Ray
Source



Lightweight Hand
Held Detector
Capability



Unmanned Aerial Vehicle
– ISR/Payload Capability



DISMOUNTED RECONNAISSANCE SETS, KITS, & OUTFITS (DR SKO)

- Level A w/ Self-contained Breathing Apparatus (SCBA) protection (required for THAAD accident/incident response)
- CBRN presumptive identification
- Sensors integration w/MTRS Inc II
- Personnel Decontamination

NEXT GENERATION ADVANCED BOMB SUIT (NGABS)

- 360 degree blast, frag, ballistic and thermal protection
- Reduce weight (10%) and improved ergonomics
- Modular/Scalable (Soldier Protection System)
- Internal Cooling System
- Sensor/Comms Suite (thermal / night vision)



ABS



NGABS



EOD WARRIOR
FOUNDATION

EODWF - Mission

To improve the quality of life for the EOD family by providing financial relief, scholarship opportunities, physical, social, & emotional support.

About the EODWF

- We provide support above and beyond the budgetary constraints of the Department of Defense (DoD) and Department of Veterans Affairs (VA).

2017

- Spent over \$600,000 in support to EOD families in need.
- Provided scholarships to 110 EOD dependents, totaling over \$210,000.
- Enabled over 150 EOD warriors, their families, and the families of our fallen to attend therapeutic healing retreats and family events.
- **Supported “Holistic Resources”** – Provided Transcendental Meditation TM Scholarships through the David Lynch Foundation.
- Partnered with Boulder Crest in providing Progressive & Alternative Treatment for Healing Heroes (PATHH) programs to our community.

Four Pillars of Support

I. Financial Relief

- Initial grants
- Financial grants

II. Education

- Merit based scholarships

III. Hope & Wellness

- Retreats
- Family days
- Events

IV. EOD Memorial Care

- Maintained with respect and honor

Notification

We take action when

- EOD Technicians are Wounded In Action
- EOD Technicians are Killed in Action
- EOD Warriors or their family has a crisis
- EOD Community members expresses need

Sources

- Senior Leadership within EOD Command/Battalion/Flight
- Active Duty service members reaching out
- Family members or EOD community reaches out
- EODWF Staff or Board member receives notification
- Social media, personal contacts, concerned members of the community

Additional Thoughts

- Privacy
- Communication
- Approval process
- Alternative and additional assistance

Suicide Prevention Initiative

- Dr. Kelly Posner Gerstenhaber, PH.D. - Columbia University
- Columbia-Suicide Severity Rating Scale (C-SSRS)
- A.C.E.
 - Ask your fellow tech
 - Care for your fellow tech
 - Escort your fellow tech

** A.C.E. cards available
for download on our
website*



How you can help us help **you....**

- Communication is key
- Provide command leadership points of contact
- Please ask questions, we are here to help!

Visit us @ www.eodwarriorfoundation.org

Email: info@eodwarriorfoundation.org

Phone: 850.729.2336

Thank You

Thank you for your service and sacrifice!

It is the generosity of others that allows us to assist in

“Disarming Challenges”

for EOD Warriors and their Families.



National Defense Industrial Association's Explosive Ordnance Disposal (EOD) Committee

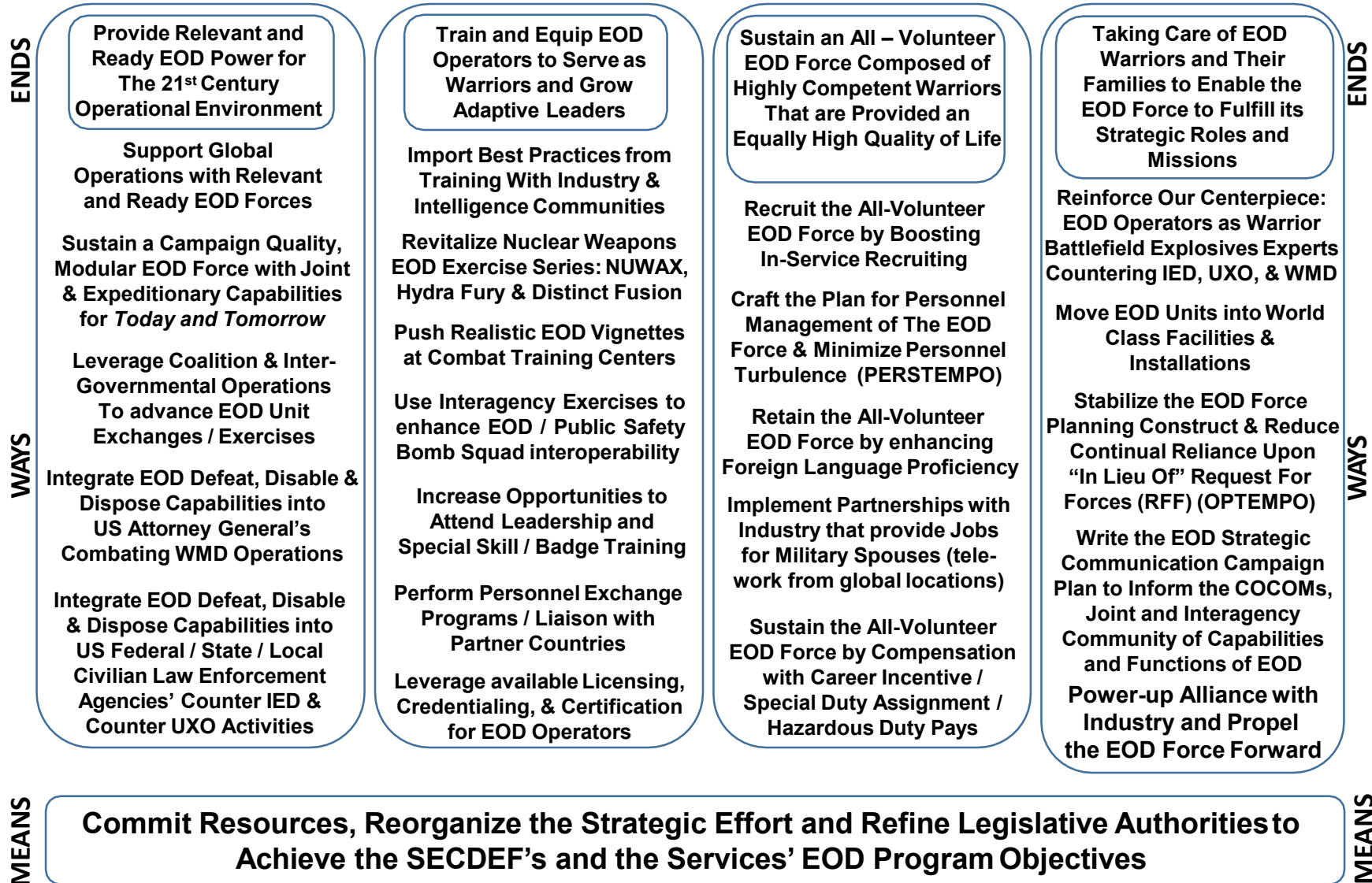
Mission Statement: engage thoughtful and innovative leaders to advance and support the best policies, practices, products and technology that will ensure the safety and security of the nation.

- **CHAMPION** issues that contribute to the strength, resiliency and capacity of the industrial base
- **BUILD** a vigorous, responsive and collaborative community in support of Defense and National Security
- **CONVENE** legal and ethical forums for exchange of ideas, information, view points and capabilities

NDIA Future: looking to the next 100 years, continue to ensure all perspectives and ideas – including those that have not traditionally participated in the defense of our nation – are represented so we remain a forward-thinking and innovative organization that evolves with changing times.

Vision: Achieve Dominant Full-Range Capable EOD Combat Power in Service to the Nation

DOD Mission: Provide Highly Trained EOD Forces and Capabilities to Combatant Commanders and Other Governmental Agencies in Support of the National Security and Defense Strategies



Champion / Build / Convene:





**“However beautiful
the strategy, you
should occasionally
look at the results.”
— Winston
Churchill**

Joint Improvised-Threat Defeat Organization

JIDO Update

14 August 2018

Ms. Lisa Swan

Director, Material Solutions



HELPING WARFIGHTERS ADAPT

Approved for public release; distribution is unlimited

All portions are UNCLASSIFIED unless otherwise stated



UNCLASSIFIED

Joint Improvised-Threat Defeat Organization

JIDO

Provide combat support to Warfighters countering-IEDs



Build partner capacity, networks, and relationships to counter improvised threats



JIDO enables the DoD to counter improvised explosives devices and emerging improvised threats in order to support Combatant Commands and deployed Warfighters



Enable Warfighters through technology, innovation, and outreach



Develop Workforce and Leaders to enable JIDO future

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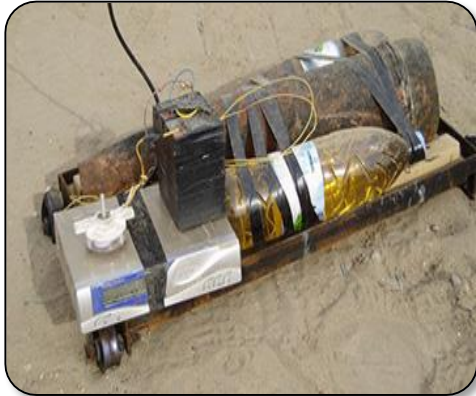


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Improvised Threats

JIDO

**Abundant, Cheap,
Easily Transformed**



**Constantly Evolving
Technology**



**Lethal and
Effective**



How do we define improvised threat?

“An adaptively applied tactical capability leveraged to provide a cascading impact against a friendly advantage.”

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Success Story #1

JIDO

In April 2018 JIDO trained Coalition forces at Resolute Support HQ to screen vendors using two technologies, the FIDO XT and Trace X.

No vendors had ever been screened for explosives.

- A: Hand-scanning at the Entrance Control Point.
- B: A replica antique telescope from the vendor's shop. The interior of the telescope was empty, and could have been packed with explosives.
- C: The actual vendor being scanned with the FIDO XT, which tested positive for trace explosives. Based on that result, they proceeded with further Criminal Investigation vetting.
- D: Chemical testing
- E: Iris scanning
- Pictures F and G are the FIDO XT and the TRACE X detection kits



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Success Story #2

FIDO

Trace Explosive Detection at the Kabul Enhanced Security Zone.

- A: Training the Check Point Commander on trace explosives detection using the FIDO X3. A random vehicle was chosen for inspection.
- B and C: Positive results for trace explosives found on the vehicle and on the driver's hands.
- D and E: The actual taxi that was swiped and tested positive.



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Success Story #3



- HYBRID/HARVESTER is a JIDO funded program, partnered with Indian Head EOD Technical Directorate.
 - Handheld capability for rapid IED event reporting; USG Owned API.
 - Intended to enable the Virtual Advise and Assist model for working with international partners
 - Generates Unclassified reports with an automatic feed to OCONUS/CONUS DoD Stakeholders
 - U.S. Forces/EOD conducting missions and training with partner nations (US Army/Navy/USMC SOF/EOD)
- Currently, 77 kits deployed in CENTCOM (Iraq/Afghanistan), AFRICOM (Somalia, Cameroon, Tunisia)
- The real success has been giving US EOD/SF units the ability to conduct some rapid reporting on devices they are receiving at the labs or where they have only a limited amount of time with a device.

HYBRID MOD 1 EOD REPORTING TOOLKIT
Choose Smartphone or Tablet

HYBRID MOD 1 App v3.2.16.3

- App is fully tested on these two hardware platforms
- App supports foreign character font sets in the text blocks (has been tested so far with Dari, Pashto, and Arabic downloadable keyboards)
- Same user data fields and operation as earlier HYBRID MOD 0 kit, uses JIDA WTI testcon
- Unclassified reports sent out via Internet, end user can add email addresses to distribution list
- Reports can be pushed to INDURE/NIMS/CIDNE/other

BLU Studio X Plus D770U

- HYBRID KIT DOES NOT INCLUDE SIM CARD OR MOBILE SERVICE !
- GSM 850/900/1800/1900 & UMTS 3G 850/1700/1900
- DUAL SIM phone
 - 2 slots, 1 microSIM & 1 full size SIM
- Wi-Fi 802.11 b/g/n
- 5.5 inch LCD Touchscreen Display
- Resolution 720 x 1280 Pixels
- Android OS v3.0.2 (does NOT support restricted user accounts)
- Memory Internal 8 GB, 1 GB RAM
- Camera 8 MP, 3264 x 2448 Pixels (can focus as close as about 3")
- USB Micro v2.0

Samsung Tab Pro 8.4" SM-T320

- NOT A CELLULAR DEVICE
- Wi-Fi 802.11 b/g/n ONLY
- 8.4 inch LCD Touchscreen Display
- Resolution 1600 x 2560 pixels
- Android OS 4.4.2 (supports restricted user accounts)
- Memory Internal 16 GB, 2 GB RAM
- Camera 8 MP, 3264 x 2448 pixels (can focus as close as about 2")
- USB Micro v2.0

HARVESTER MOD 1

28 pin socket Press black for battery and memory status

Press green to detect/read SIM or chip

SIM Card Slot

SD Card Slot (Inactive)

On / Off

DC Power (Inactive)

USB Type B (Inactive)

USB Port (to connect to phone/tablet)

- Auto-detects/reads about 160 integrated circuits & microcontrollers
- Operates on 9V battery
- Reads up to 6 unlocked SIMs before memory is full
 - Captures IMSI, ATR, SPN, ICCID, LOCL, GPRS LOCL, ADN LIST, SMS LIST
- Number of chip reads depends on chip memory size
- Upgrades from the MOD 0 Harvester
 - RGB display, turns red if memory full or battery low



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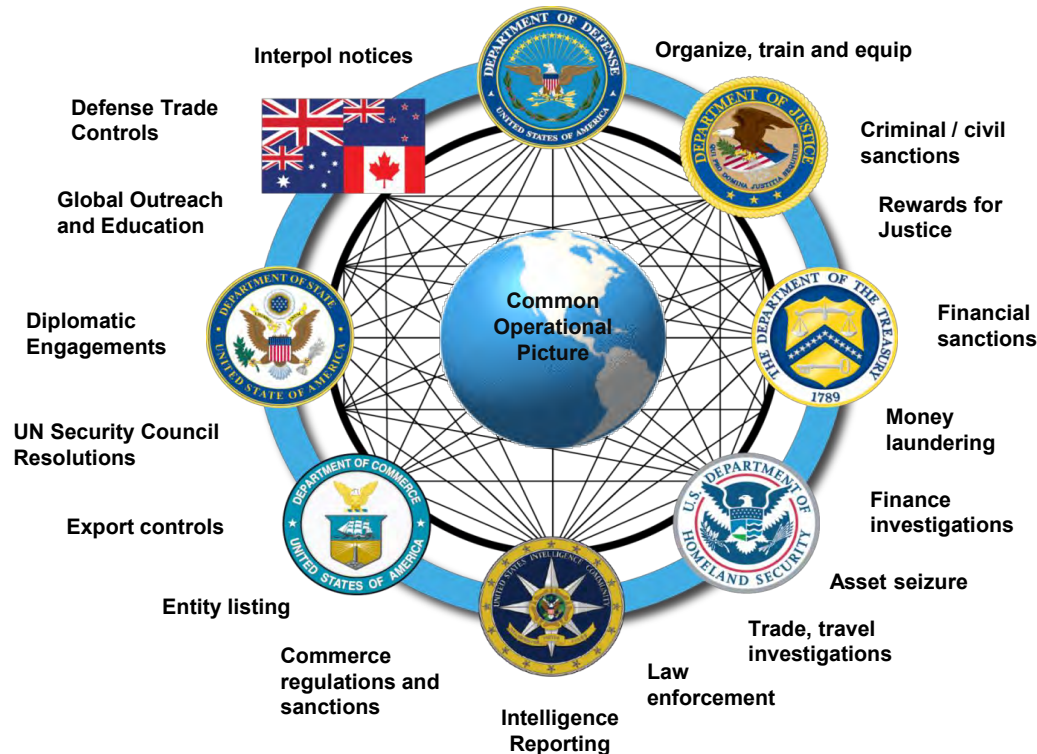


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Enable DoD Responses to Improvised Weapons

JIDO

Leveraging the access, tools and authorities of all partners to counter improvised threats



- U.S. Government
- Intelligence Community
- Industry
- International Partners
- Academia
- Think Tanks
- Private Sector

Access — Authorities — Collaborate — Coordinate — Leverage
“It takes a network to defeat a network.”

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