



***US Army Natick Soldier Systems Center
Natick, Massachusetts***

Presentation to the MetroWest Chamber of Commerce

27 January 2012

BG John J. McGuiness
*Deputy Commanding General,
US Army Research, Development and Engineering Command*

*Senior Commander,
US Army Natick Soldier Systems Center*

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Agenda

- Research Development and Engineering Command (RDECOM)
- Natick Soldier Systems Center (NSSC)
- Doing Business with the Army

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RDECOM Vision/Mission

Vision: The Army's primary source for integrated Research, Development and Engineering capabilities

Focus on the Warfighter

Mission: Empower, unburden and protect the Warfighter to provide the Army with the decisive edge



RDECOM Structure



Charter Established
23 August 2002



MG Nick Justice
CG RDECOM



CSM Hector Marin
CSM RDECOM



Mr. Dale A. Ormond
EDCG RDECOM



BG John McGuiness
DCG RDECOM &
Senior Commander of Natick

- RFEC Atlantic
- RFEC Pacific
- RFEC Americas



AMRDEC
Aviation & Missile
Research, Development
& Engineering Center



AMSAA
Army Material
Systems Analysis
Activity



ARDEC
Armaments Research,
Development &
Engineering Center



ARL
Army Research
Laboratory



CERDEC
Communication-
Electronics Research,
Development &
Engineering Center



ECBC
Edgewood
Chemical Biological
Center



NSRDEC
Natick Soldier
Research,
Development &
Engineering Center



TARDEC
Tank and
Automotive
Research,
Development &
Engineering Center

Mission: Empower, unburden and protect the Warfighter to provide the Army with the decisive edge

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RDECOM Technology Areas

Air & Missile RDEC (AMRDEC)

- Engines & Drive Trains for Aviation
- Platform Design & Structures
- National Rotorcraft Technology Center
- Rotors and Vehicle Management
- Unmanned & Optionally Manned Systems
- Aircraft and Occupant Survivability
- Airworthiness Approval and Direction
- Mission Critical Computer Resources
- Active Protection
- Air Defense
- Mission Critical Computer Resources

Tank-Automotive RDEC (TARDEC)

- Ground Vehicle
- Survivability
- Active Protection Systems
- Vehicle Electronics and Architectures
- Mobility
- Sustainment Engineering
- Water Purification
- Power & Energy
- Robotics
- Military Adaptation of Commercial Technology
- National Automotive Center

Edgewood Chemical & Biological Center (ECBC)

- Aerosol Physics
- Chem & Bio Agent Spectr/Algorithm Devel
- Chemistry & Bioscience of CB Warfare
- Emerging Threats Science/Technology
 - Filtration Sciences
 - Inhalation Toxicology
 - OPCW Laboratory
- Smoke and Obscurants Advanced Technology
- CB Concept Through Sustainment Solutions
 - Life Cycle CB Materiel Acquisition
 - Full Service CB Testing
 - CB Agent Handling and Surety
- Chemical Munitions Field Operations
 - Single Small Scale Facility

Natick Soldier RDEC (NSRDEC)

- Clothing & Protective Equipment
- Airdrop / Aerial Delivery
- Expeditionary Basing
- Joint Service Combat Feeding
- Soldier/SCU Technology Maturation & Demo
- Human Systems Integration Sciences



Communications-Electronics RDEC (CERDEC)

- C2 Enabling Technology
- Electronic Warfare Technology
- Aircraft Survivability
- Radar
- IR
- Counter IED
- Power
- Antennas
- Network Enterprise Management
- Cyber warfare
- Intelligence & Surveillance
- Displays
- Tactical Biometrics
- C4ISR Systems Integration
- Wireless Transport / Mobile Networking

Armaments RDEC (ARDEC)

- Grenades and Demolitions
- Warheads
- Fire Control Systems
- Fuze. Energetics
- Small / Medium Caliber Weapons and Ammo
- Large Caliber Weapons and Ammo
- Aeroballistics, Shot Detection, High-g
- Munitions
- Explosive Ordnance

Army Research Lab (ARL)

- Information Sciences
- Human Sciences
- Materials and Manufacturing Sciences
- Ballistics and Aeromechanic Sciences
- Extramural Basic Research

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Demonstrating Army Technology Advances



Technology Enabled Capability Demonstrations (TECDs)

- Starting in FY 14
- Short-term (2-3 year) programs that demonstrate and deliver a capability thru S&T.
- 10 programs across the Army S&T community
 - **Force Protection – Soldier & Small Unit**
 - **Overburdened – Physical Burden**
 - **Sustainability/Logistics - Basing**
 - Force Protection - Basing
 - Force Protection - Occupant-Centric Platform
 - Surprise/Tactical Intelligence - Mission Command
 - Surprise/Tactical Intelligence – Actionable Intelligence
 - Human – Medical Assessment/Brain in Combat
 - Human – Individual Training to Tactical Tasks
 - Sustainability/Logistics – Transport, Distribute, & Dispose



Three led by
NSRDEC

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Natick Soldier Systems Center



**In Operation
Since
1954**

Infrastructure

78 Acres

459,000 Sq. Ft. of Lab Space

**Total 174 Acres (including 75
Family Housing units)**

**MISSION: Conduct research, development,
acquisition and sustainment to maximize
combat effectiveness and survivability of
freedom's defenders.**

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Natick Soldier Systems Center Collaboration and Synergy



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Natick Soldier Systems Center Collaboration and Synergy



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Who We Support



ARMY



MARINES



NAVY



AIR FORCE



SOF



COAST GUARD

Defense

- Joint Program Executive Office for Chemical/Biological Defense
- Defense Logistics Agency
- Defense Advanced Research Projects Agency

Other Government Agencies

- Office of the Surgeon General
- National Aeronautics & Space Administration
- Food and Drug Administration
- United States Department of Agriculture
- United States Forestry Service
- Bureau of Engraving and Printing
- United States Postal Service
- Army Veterans Program
- Department of Justice
- Department of Homeland Security

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The 5 P's

People

Employees: The Best of the best serving the best

Education: 1319 Advanced Degrees

Majors: Over 70 Disciplines
Aerospace to Zoology

Places

Unique Testing Facilities:

Doriot Climate Chambers

Altitude Chamber

Hydro Environ Chamber

Thermal Test Facility

Base Camp Systems Integration Lab

Processes

Joint Operations

World Class R&D

Partnerships

Purse

Contract:

FY-11 MA = \$305M

FY-11 Metro West = \$1.2M

NSSC Payroll = \$131M

Large Economic Impact

Products

R&D Programs

Support Current Fight

Equip Freedom's Defenders

Create the Future Force

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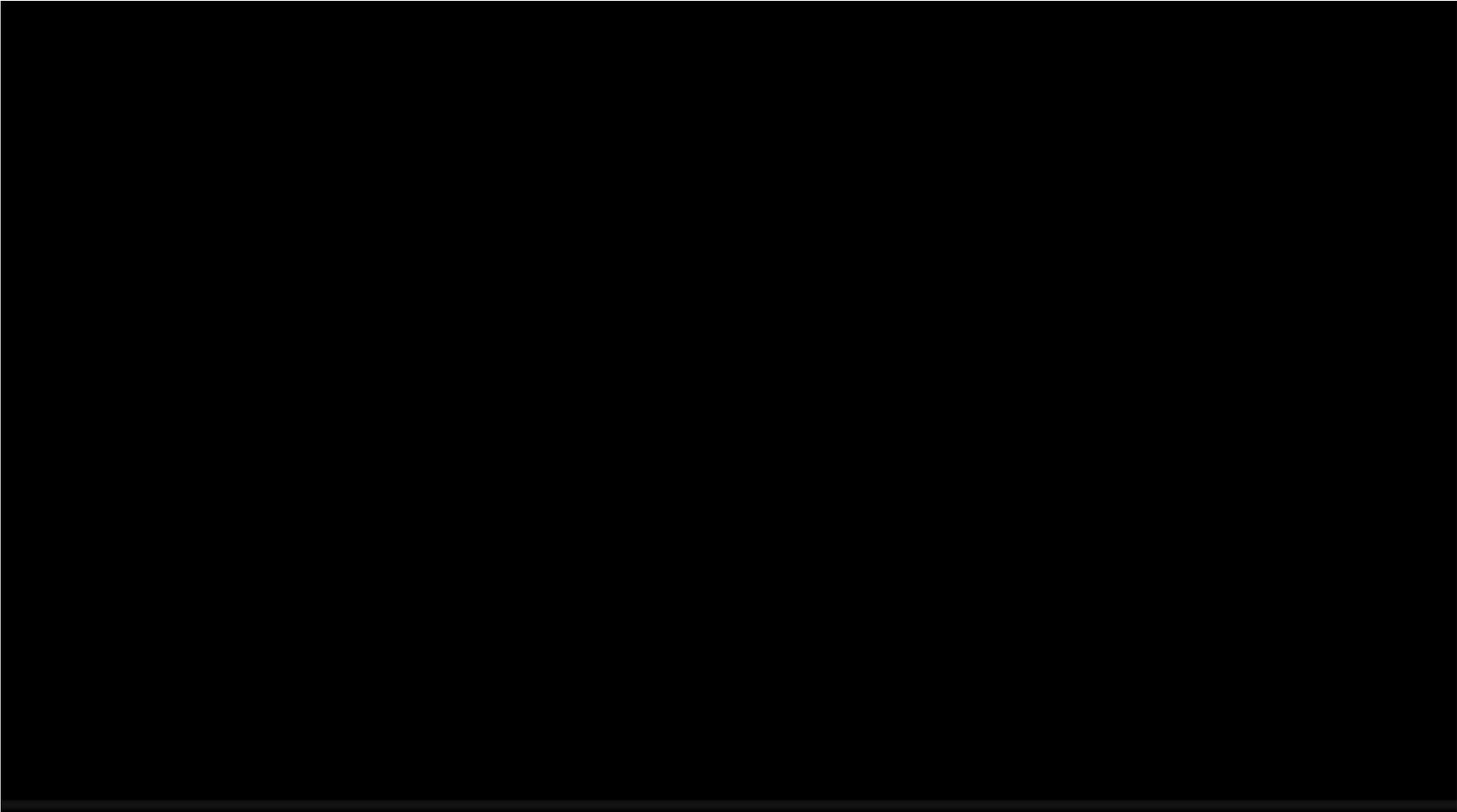
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NSSC Labs and Test Facilities

Center for Military Biomechanics Research

Allows for 3D analysis of movement, measurement of external forces on the body, monitoring of muscle activity, assessment of O₂ consumption, and real-time mapping of pressure patterns



3D Laser Scanning Lab

Whole body & head/face laser scanning system that enables measurements for current and next generation armor and helmet systems



Doriot Climatic Chambers

Tests the limits of human performance under extreme conditions. Primarily used for human research – where a dedicated group of soldiers perform as human research volunteers



Cognitive Performance Lab

Virtual Reality & Mobile Cognitive Assessment Platform Capabilities



Thermal Test Facility

Includes a propane fire cell, flame & thermal lab, laser lab, and CO₂ laser



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NSSC Labs and Test Facilities

USARIEM Maher Memorial Altitude Laboratory

Pikes Peak, Colorado

Located on the summit of Pike's Peak this field laboratory is ideal for altitude studies involving multiple volunteers (up to 16) and longer exposure times.



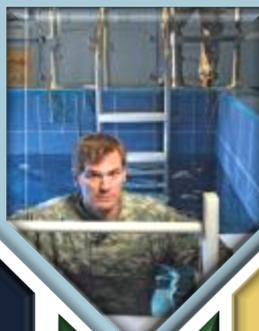
Hypobaric (Altitude) Chambers



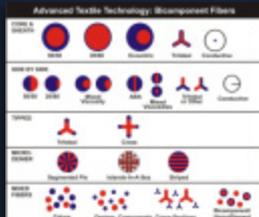
Simulates global atmospheric conditions by reducing ambient barometric pressure in combination with precise manipulation and control of temperature and relative humidity.

Water Immersion Laboratory

Test human performance while exercising in water with temperatures controlled between 5°C to 50°C.



Fiber CoE



One of a kind bi/tri-component fiber extrusion capability that enables the exploration of lightweight and reactive/responsive multi-functional fibers.

Polymer Film CoE



Enables R&D of new plastics and nanocomposites formulations at lab scale production level

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Base Camp Integration Lab



- Based at Fort Devens - Team Effort (Active and Reserve)
- Two 150 man Force Provider Expeditionary Base Camps
- Test and Improve Current Component Systems
- Develop New Technologies for Future Use – Power & Water
- Great Potential to Expand



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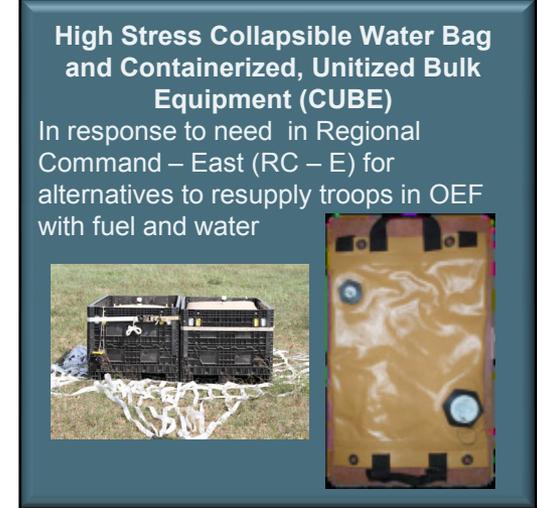
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Current Operations Support

Quick Reaction Cell (QRC)

- NSRDEC component of RDECOM's Current Operations supporting elements
- Immediate responses to Capability Shortfall Requests from deployed Operating Forces (primarily OEF)
- Rapid prototyping and equipping to demonstrate technologies with deployed units
- Improve **Soldier** Tactical Capabilities (Survivability, Sustainability, Mobility, Combat Effectiveness, and Quality of Life)



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How Do You Get in the Game?



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Working with the Army

Contracting / Partnering

Contracting



- **SBIR (Small Business Innovative Research)**
 - Phase I \$100K over 6 months; Phase II - \$1M over 2 years.
- **BAA (Broad Agency Announcement)**
 - The type of research solicited under a BAA attempts to increase knowledge in science and/or to advance the state of the art as compared to practical application of knowledge.
- **Standard Contract**
 - Funding issued against specific statement of need.
- **Grant**
 - Funding issued without defined outcome.
- **Cooperative Agreement**
 - Funding issued against a specific need when Gov't participation in the work is expected.

Partnering



- **CRADA (Cooperative Research & Development Agreement)**
 - One or more federal partner(s) working collaboratively with one or more non-federal partner(s).
- **TSA (Testing Services Agreement)**
 - Fee-for-service commercial test and evaluation activities for private industry, academic institutions, and individuals. Not a collaboration.
- **PLA (Patent License Agreement)**
 - PLAs license commercial companies to commercially exploit patented government-developed technology.
- **EPA (Education Partnership Agreement)**
 - Flexible agreement for the transfer of material, technology, and expertise, to elementary and secondary schools, colleges, universities

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Innovation Access Network



Where the Future of Innovation Meets

Home

About IAN

FAQs

Become an Innovator

Welcome to the Innovation Access Network

A vibrant technology exchange rather than mere marketplace, the Innovation Access Network, IAN, empowers entrepreneurs and small businesses to share new ideas and innovative technologies with larger technology firms, universities, research labs and government agencies in a secure, strategic, and targeted manner. Similarly, IAN enables larger entities to seek out new business relationships with an expanding pool of global innovators.

Developed by the Massachusetts High Technology Council, IAN enhances a company's access to other firms or suppliers that may exist outside of traditional procurement pipelines, and improves the innovator's ability to connect with potential partners and customers beyond their normal reach.

IAN is global and cross-sector in scope and specializes in creating connections to the nation's premier technology cluster assets including world-class universities, research labs, and companies. [Learn More](#)

"Massachusetts and New England are home to the nation's leading technology firms, defense contractors, universities, research labs and small businesses and IAN is the connective tissue for the region's innovative technology cluster that will help create new partnerships, business opportunities and jobs."

- U.S. Senator John Kerry -

News & Updates

[11/16/2011 – Providence Business News article about IAN](#)

IAN's VP of Business Development Rick Mahoney sat down with PBN recently to discuss IAN's growth... [Click here](#) to read.

Network Seekers



Resource Sponsors



Latest Technology Requests

[Unit/Organization Equipment](#)

Unit/Organization Equipment...

[Ration Research and Development \(ration safety, nutrition, stability, and processing\)](#)

Ration Research and Development (ration safety, nutrition, stability, and processing)...

[Ballistic Protection for Individuals](#)

Ballistic Protection for Individuals...

Success Story

One member recently began working with an Innovator from the rapidly growing Innovator community. According to the member, the organization they are working with "would have never been found if not for their involvement in IAN."

<https://www.innovationaccess.org/>

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Contacts for Partnering at NSSC

**US Army Natick Soldier Research,
Development and Engineering Center**

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Partnering at RDECOM Centers/Labs

US Army Aviation and Missile Research,
Development and Engineering Center
(AMRDEC):
Redstone Arsenal, AL
Russ Alexander
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US Army Armament Research, Development
and Engineering Center (ARDEC)
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Tim Ryan
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US Army Tank and Automotive Research,
Development and Engineering Center
(TARDEC)
Warren, MI
Peter DiSante
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US Army Edgewood Chemical Biological
Center
Aberdeen Proving Ground, MD
Dhirajlal Parekh
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US Army Communications and
Electronics Research, Development and
Engineering Center (CERDEC)
Aberdeen Proving Ground, MD
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US Army Research Laboratory
Aberdeen Proving Ground, MD
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Natick Soldier Systems Center Natick MA

Over 50 Years Protecting Those Who Serve

- We are the science behind the Soldier, Marine, Sailor, Airman and Coast Guardsman.
- Our location provides unique access to New England's world-renowned Universities, Hospitals & Industries.
- We play a crucial role in World-wide Operations and Homeland Defense
- We play a key role in Army Transformation for the 21st century
- Working together, we're greater than the sum of our parts

NSSC is Home to the Soldier of the Future



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Conclusions



EMPOWER

UNBURDEN

PROTECT

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