RDECOM

U.S. ARMY ARMAMENT, RESEARCH, DEVELOPMENT & ENGINEERING CENTER

Malcolm Baldrige National Quality Award
2007 Award Recipient

TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.

ARDEC's Role In Countering the IED Threat

Mr. Ray Carr,
ARDEC Counter Terrorism Technology Team

- Mission, Approach, Introduction
- Some Specific Areas of Influence
  - Explosive Detection
  - Armor
  - EOD tools
  - Training

MISSION: Act as the ARDEC Program Manager to:

- **RAPIDLY DEVELOP AND FIELD** appropriate technologies to assist the warfighter in countering the Asymmetric threat.
- **Develop strategy that leads to C-IED & C-Sniper system acquisitions, TRANSITIONS TO PMS, and create Programs of Record.**
- **To every extent possible, DEVELOP DUAL USE TECHNOLOGIES**

RESOURCES:

- **$10M investment over the past 4 years**
- **$35M annually customer funded C-IED efforts.**
- **Over 80 engineers and scientists currently work on 20 C-IED and Counter Sniper projects, partnered with academia and industry.**

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Funding, Recruiting, Training, Planning

Strategic

Leadership, Planning, Training

Tactical

Supplies

Engineering, Manufacture

Predict/Prevent Detect

Neutralize Mitigate

Monitor, Detonate

Greatest effect is realized by disrupting early life cycle activities

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Battle Rhythm…

- **Monday – RDECOM Counter IED Task Force**
- **Tuesday**
  - **CG AMC Operations Brief (AFSB Updates)**
  - **JIEDDO Line of Operation**
  - **STAT Team Bi-Weekly Teleconference**
- **Wednesday**
  - **RDECOM Current Operations IPT**
- **Thursday**
  - **ARDEC GWOT Project Review**
- **Friday**
  - **NSA Counter IED IPT**
  - **MNF-I Tech Solutions**

MNC-I STACA

CJTF-82 STACA   **AMC- STAT 18**

TF-TROY & TF-PALADIN

402 AFSB

PEO-AMMO,   PM IEDD/PF
JIEDDO,   REF
TRADOC
Visit units prior to deployment
29 Palms, NTC & JMTC
     "Dusty Boots Council"

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Defeat the Device

EOD Tools
Directed Energy Systems
Armor
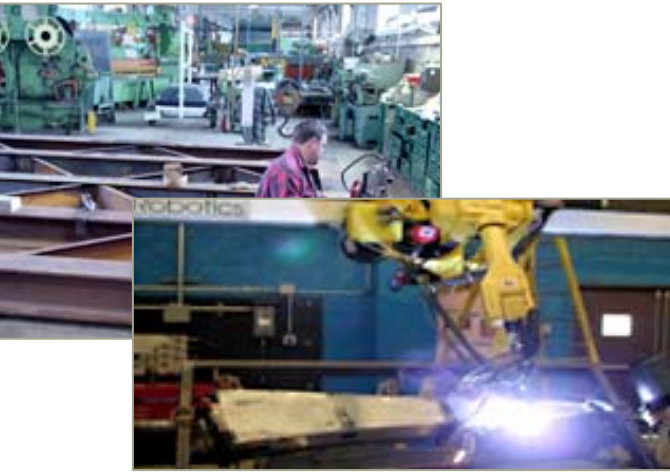Buried IED Detection
Base Defense

Attack the Network

Surveillance Sensors
Cache Detection
Explosive Detection
TTL

Train the Force

Pyrotechnic Training Devices
Virtual Training
Surrogates & Simulators

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Rapid Prototyping Facility

Explosives Detection Laboratory

Davidson Advanced Warhead Development Facility

Acoustics Technology Laboratory

Fuze, S&A, Telemetry

Armament Software Engineering Center

- Newly completed explosive test bed facility for trace or bulk detection
  - Conductive floors, explosion proof electrical
  - Clean room, laboratory
- Access to military, foreign, commercial and improvised explosives
- High capacity storage bunkers
- Analytical lab for manufacture and identification of explosives
- Qualified personnel with many years of explosives experience
  - Trace & bulk detection
  - Foreign sample analysis
  - Formulations, manufacturing
  - Testing & analysis, handling and storage
- EOD/ Foreign material exploitation experience
- K9 Proficiency program

Evaluate & Validate

- System performance
- Sensitivity / Selectivity
- Analysis time
- Ease of use
- Covertness
- Real-time analysis
- Maximum Throughput
- Minimize peripherals
  - e.g. PDA size display
- Durability & High Temp operation
- Key background materials
  - Clothing, Building, Vehicle
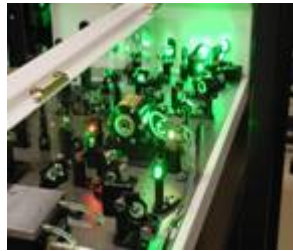- Standoff potential

Explosive Detection System Architecture

Hardware / Software
Bldg 92, 31, 95

Excitation Source
Bldg 95, 407, 329

— Laser
— Acoustic
— Mechanical

Interrogation Target
Bldg 3028, 3029, 1029

— Military
— Commercial
— HME

Collector
Bldg 95, 407

— Optical
— Vibrometer

Signal Processor
Bldg 407

Detector / Spectrometer
Bldg 3022

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IMG
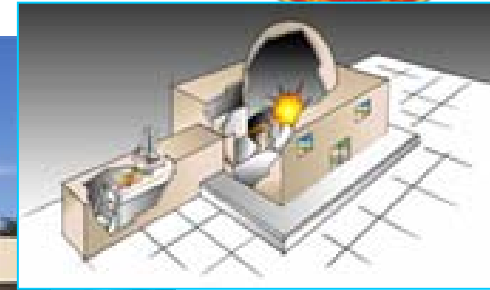
Objectives:

Develop Armor Recipes

Defeat multiple threats

Qualify a Lightweight Armor Solution (2 Designs) at ATC

Using IMG as Baseline Vehicle for Integration

Partnerships with ARL and Industry

- Enhance IED detection through TALON control, video and power upgrades

- Enhance IED Neutralization by extending TALON life and control

- **Access and Disrupt VBIED's**
- **Designed for ease of use in field**
- **Use fielded ammunition items**

- Training
  - Situational training
    - Adaptive Thinking and Leadership
    - Future Soldier Trainer
    - Installation Force Protection
    - IED Virtual Trainer

  - Robot and equipment trainers
    - NBC Dismounted Equipment Trainer
    - EOD TALON Trainer
    - SWORDS Trainer
    - PackBot Trainer: EOD and CBRN

  - Shoulder launched weapons
    - Javelin Basic Skills Trainer

- Provide a realistic training environment to enable soldiers to fine tune their operating skills with out the use of an actual robot
- Provide virtual operation of the PACBOT MTRS and TALON MTRS robot platforms.
- Able to add additional robot platforms as needed by the EOD community.
- Virtual Joystick must utilize the same type controls as the actual robot

THE OFFICIAL U.S. ARMY GAME

AMERICA'S A★A ARMY

IED Virtual Trainer

- Scenario Training & replay recent events
- Equipment Training (e.g. TALON)
- Reinforce TTPs
- Installation Security, Emergency Response, Threat Recognition
- Interact as spectator or active participant

- ARDEC Has a Diverse Talent Pool and facility infrastructure that can rapidly concept and prototype solutions to mitigate an ever changing threat.

- ARDEC Civilians & Military provide invaluable in-theater New Equipment Training (NET), System Technical Support, Staff AMC FAST.

....Focused on our Ultimate Customer - the Warfighter

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Questions?

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