



U.S. Army Research, Development and Engineering Command

OVERVIEW: CERDEC Quick Reaction Cell / Warfighter Support Office



TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.

Overview

Troy Steward

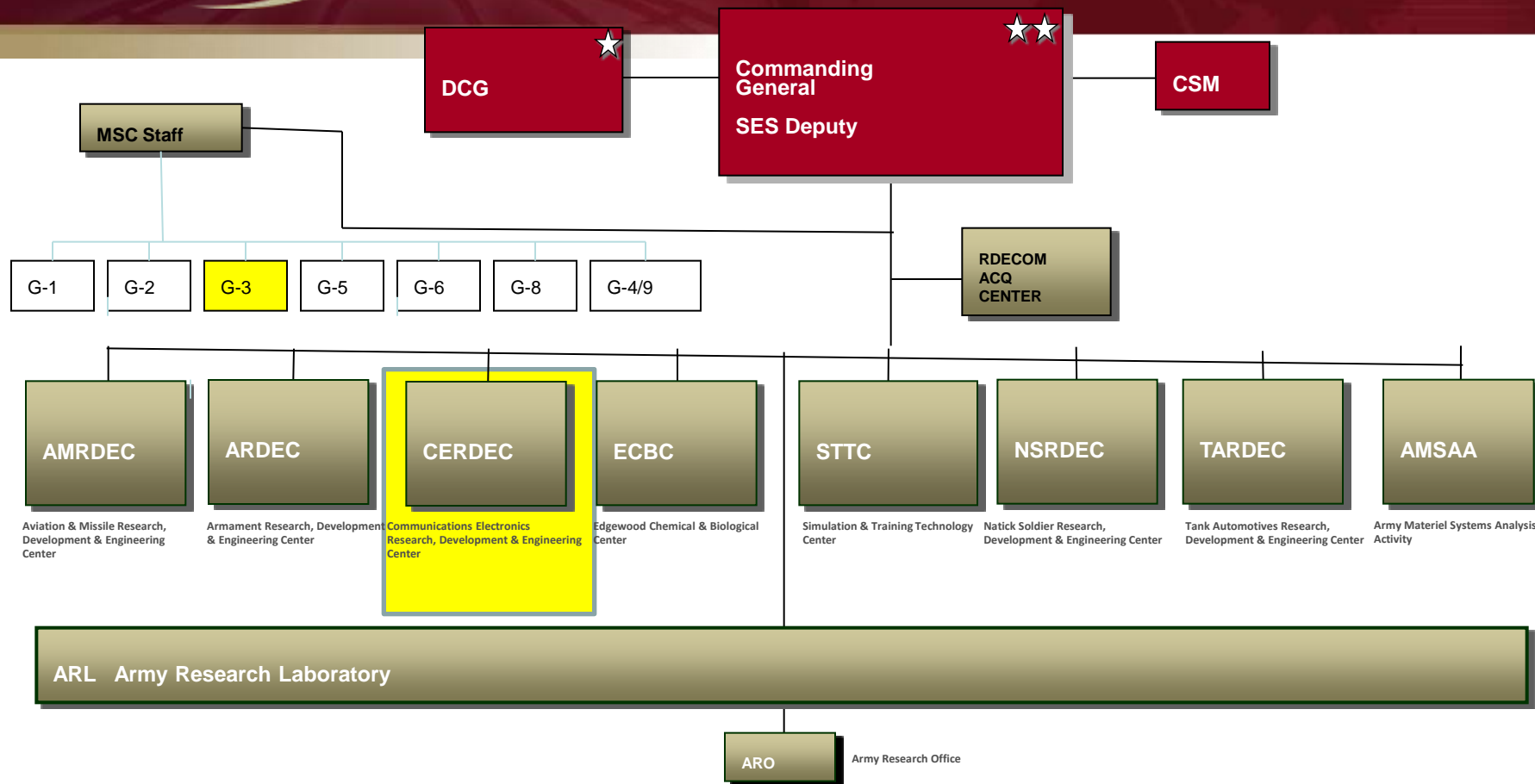
Combat Developer- Warfighter Support Office

Cell: 732-281-7531

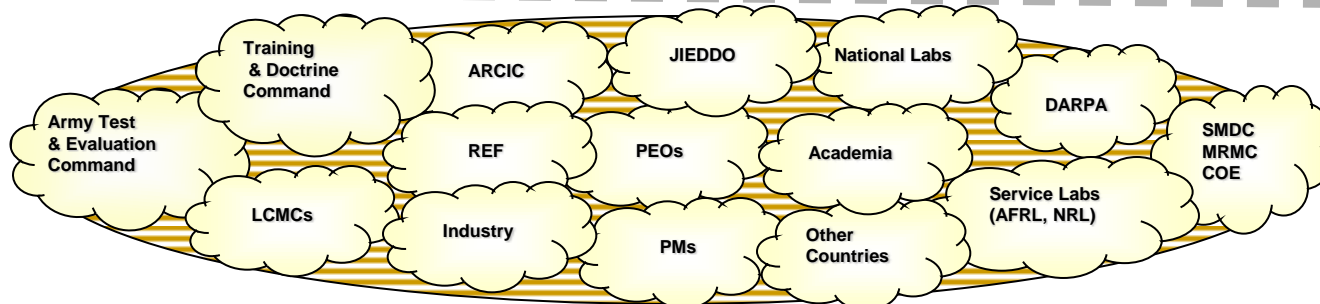
NIPR: william.t.steward@us.army.mil

SIPR: william.t.steward@us.army.smil.mil

RDECOM Organization



Partners



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CERDEC Organization

Where the QRC fits in

HQ
STAFF

DIRECTORATES

OFFICE OF THE DIRECTOR

Director – Ms Jill Smith (SES)
Associate Director – Robert Zanzalari
Military Deputy – COL Surdu
Chief Scientist – Dr. Arthur Ballato

Chief Information Office/G6

Theresa Bickler

Security/G2

Vicki Soos

Associate Director For Transformation

Michael Lombardi

Associate Director For Systems Engineering

Seyhun Byrne (A)

PdM C4ISR OTM

LTC Willie Utroska

Associate Director Operations

Thomas O'Neill

Current Operations/Quick Reaction Cell

Joseph Johnson

Associate Director Technology & Strategic Planning

Mari Kovach

Command & Control (C2D)

John Soos (Acting) Director

- Battle Command
- Army Power
- Battle Command Appl
- Quick Reaction & Battle Command Support

Space & Terrestrial Communications (S&TCD)

Henry Muller (SES) Director

- Systems Engineering Analysis & Modeling and Simulation (SEAMS)
- Information Assurance
- SATCOM
- Antennas & Spectrum Analysis
- Tactical Wireless Networking
- GIG Tactical Networks

Night Vision & Electronic Sensors (NV&ESD)

A. Fenner Milton (SES) Director

- Science and Technology
- Countermine
- Modeling and Simulation
- Ground Combat Systems
- Special Projects & Prototyping
- Air Systems

Intelligence & Information Warfare (I2WD)

Anthony Lisuzzo (SES) Director

- Information Operations
- Electronic Warfare
- Air / Ground Survivability
- Fusion
- RADAR
- SIGINT

Software Engineering (SED)




Michael Skurla Director

- IEW Support
- Avionics Support
- Tactical Communications
- Satellite & Management Sys
- Information Technology Engr Solutions
- Advanced Battlespace Solutions
- Fire Support

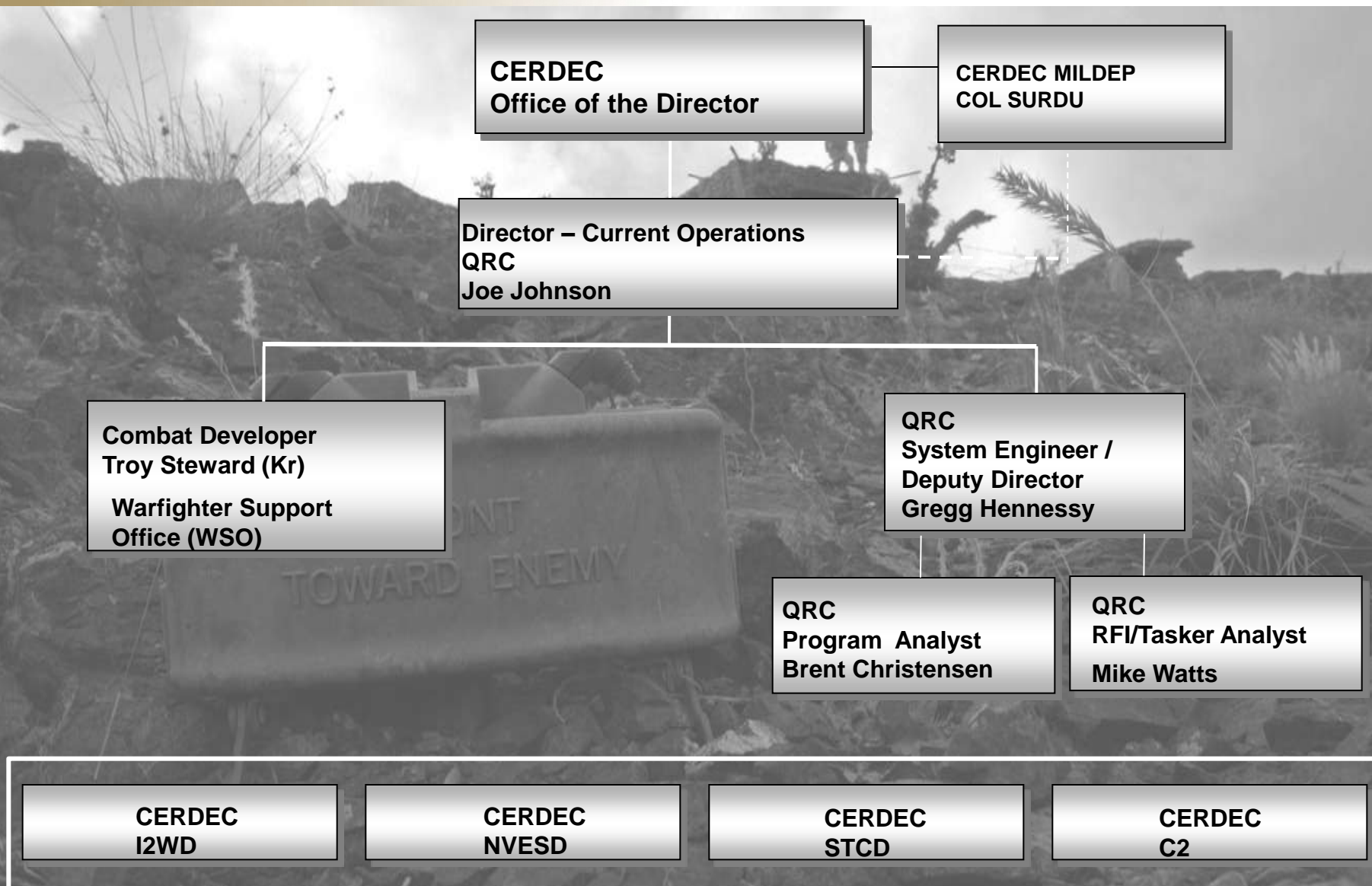
Product Realization (PRD)

Ron Michel Director

- Manufacturing systems & production engineering
- Maintenance & reliability engineering
- Systems engineering
- Manufacturing assessments
- Supply network analysis

 = Fort Monmouth
 = APG
 = Fort Belvoir

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WHY?

Mission: Support the **current fight** through providing **technical & warfighter expertise** to **bridge** the gap between the **RD&E community & the Warfighter**

Ultimately facilitate the **employment of prototypical material solutions** to meet the **Combatant Commanders requirements**



Quick Reaction Cell/Warfighter Support Office

WHAT

What We Do:

- Act as CERDEC “Front Door” for providing Warfighter **C4ISR Quick Reaction Capability**
- Assist CERDEC Technical Directorates in obtaining and interpreting **Soldier Feedback**
- Feed and **Interpret Near Term Warfighter Requirements** to the Directorates by
 - Assist in cross collaboration in the world of C4ISR (PEO's/PM's), to include down to the BCT level
 - **Rapidly respond to Requests for Information** (RFI's) from the field (to include BCTs and Battalions)
- Provide leadership and guidance to CERDEC Directorates to include advising Directorates on existing ONS/JUONS that fit within their portfolios
- Advise CERDEC Directorates on **current tactics, trends and threats for future development**
- Maintain working groups with all COCOMs and associated entities, JIEDDO, and OGAs.
- **Coordination and liaison with sister RDEC's across RDECOM**



Benefits:

- Provides device power or battery recharging capability from Solar, AC, Military Batteries, NATO plug, and Cigarette adapter.

Uses:

- Recharges BB2590 and MBITR batteries
- Provides continuous power for unattended ground sensors (UGS) and surveillance cameras.
- Powers laptops
- Powers any device that uses a BA5590 battery

QRC Involvement :

- Helped issue hundreds of kits to National Guard and Active Units both CONUS and OCONUS
- Facilitated feedback gathering from units back to C2D-Power
- Identify needs via our continuing working involvement with units to validate those with the greatest need.



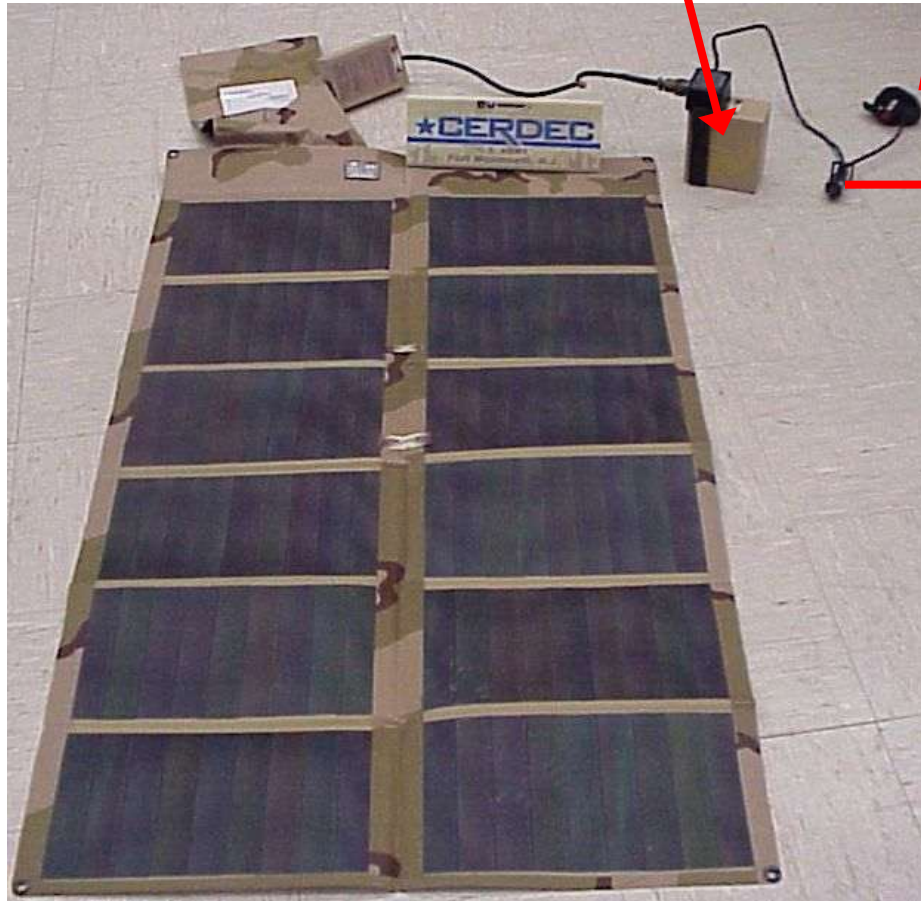
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Project Title/Subject:	Soldier Portable Photovoltaic Solar Panel Power for Continuous Charging of Vector Surveillance Light Traps
Originator:	LTC Sonya Schleich/MAJ Joseph Fagan
Issue Date:	12/22/2009
Reply By Date:	1/11/2009
Email:	Sonya.schleich@iraq.centcom.mil; joseph.fagan@mmcs.army.mil
Phone:	DSN (312) 987-5130, 1, x 3502#
Status:	Open - Awaiting Response from Lab
Issue/Summary:	<p>UNIT REQUESTED: Applicable to all Preventive Medicine Detachments (227th Medical Detachment, PM)</p> <p>Background: Preventive Medicine Detachments are required by AR 40-5 to perform disease vector surveillance and assess circulating pathogens, i.e., those that cause malaria, leishmaniasis. The piece of equipment utilized to perform this activity is part of the MES, UA 124A, Entomological Collecting Kit, Field. The item is commonly known as the CDC Light Trap, model 512. Each trap is operated using a rechargeable 6 V gel cell battery. Traps are operated anywhere from 3 to 7 days per week at several sites per week for continual surveillance. Operation of these traps requires placement between a vector breeding area and troop population. These locations are usually spread over great distances for each location under surveillance. Traps generally operate for 8 hours and are programmable to turn on and off using a photo cell sensor. The light trap utilizes a power source to operate a fan and light (when applicable). The current power source is a 6.0-6.3 volt DC 12-Amp hour, 320mAmps (0.320 Amps) / hour (NSN 6140-00-432-0490). Light Trap NSN 3740-01-106-0091</p> <p>Performance Gap: The 6V battery must be replaced after 8 hours of usage. This requires a daily trip to each trap in order to change out the spent battery. Personnel must transport the spent battery back to the unit area in order to hook it up to a recharging station. This requires the use of limited manpower and time for a 13 person detachment in which vector surveillance is only part of many preventive medicine force health protection missions.</p>



BB-2590

12V to 6V Converter



Interface to
include
adaptor/connector



Benefits:

- Sundial SmartPower™ is a reliable, lightweight renewable power solution that can be deployed immediately to remote bases in combat zones, CONUS areas of natural disasters or for global humanitarian missions.
- SmartPower™ units come in modular 20' containers and can be scaled up to 500 KW to meet local requirements.
- SmartPower™ units can also be integrated with and manage micro-hydro & diesel power generation units, thereby making a single platform for power distribution.

Uses:

- Provide renewable power to bases, FOBs, or COPs in warzones.
- Can also be used to extend power to the local community near military outposts as a reward for helping US forces.
- Is quickly deployable to areas of mass natural disasters (Hiati, Alabama, etc)



QRC Involvement :

- Established relationship with Sundial Corp early on and started facilitating discussion to CERDEC engineers.
- Tracked progress of system being acquired by US Army Forces for testing/evaluation.
- Monitored testing results of system by CERDEC prior to being deployed to Afghanistan.
- Have maintained contact with CONUS Army Project Manager and OCONUS overseeing manager, and RDECOM advisors in theater.

Issue:

- New TES/MILES system used at National Training Center (NTC) utilizes standard and non-standard batteries.
- The number of batteries issued every rotation has a very heavy cost.
- NTC needs a method to recharge hundreds, if not thousands of batteries a day in order to re-use batteries during rotation cycles.

Coarse of Action:

- Utilize Existing chargers in the Army's inventory.
- Modify an existing solar recharge system (like REPPS) to push out the power needed to charge multiple batteries at one time out in the field
- Conduct a market search of industry to see if there is any COTS solution available that would handle this battery load or could be easily modified to handle the battery load.

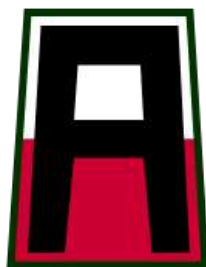
QRC Involvement :

- Visited NTC to conduct face to face meetings in order to understand the problem.
- Work with the CERDEC-C2D power team in order to determine what the Army has available.
- Search industry to see what is potentially available.

TES/MILES BATTERY REPORT

TES SYSTEM EQUIPMENT	DEVICE NUMBER / PT NUMBER	BATTERY REQUIRED	ON HAND	AVERAGE REQUIRED	ISSUED THIS ROTATION	ON ORDER	AWM	REMAINING	NEEDED
Individual Weapon System (SAT)	DVC 23- 67/68/69/70/71	LS 14250 3.6v	69,100	0	8,400	0	N/A	60,700	
		NSN: 6135-01-435-4921 / P/N 08111E125	\$2.42 Each						
Individual Weapon System (Harness)	DVC 23-(ALL) P/N 184150-2	CR123A 3.0v	95,520	0	17,240	0	N/A	78,280	
		NSN: 6135-01-351-1131 / P/N B-2017	\$19.15 Package of 12						
OH-58 & Stand Alone DCIs (Feulers, Fire markers, Contact Teams)	Instrumentation	BB390 BATTERY	287	0	0	0		287	
		P/N BT-70790							
OSV & MBT	DVC # 23-12 NTC	SCAB BATTERY	176	0	5	0		171	
		Douglas/Guardian DG12-18NB							
Individual Weapon System Overlay	P/N 184385-1	15.6 VDC PB-LW-01 BATT	12,520	50	0	0		12,520	
		P/N PB-LW-01							
OH-58 & SOKAL	AGESS I, DVC 07-65/3A	6 VOLT BATTERY	324	0	14	0	N/A	310	
		NSN: 6135-01-333-6737	\$30.92 Package of 6						
MWLD Torso / Helmet	DVC 07-56 P/N 11748856 & 11748893	9 VOLT BATTERY	75,940	0	1,800	0	N/A	74,140	
		NSN: 6135-00-900-2139	\$9.85 Package of 12						
MILES Universal Control Device	DVC 17-275	AA BATTERY	0	0	0	0	N/A	0	
		NSN: 6135-00-985-7845 P/N EN81	\$5.47 Package of 12						
ITAS TOW		Rechargeable AA	40		0	0	N/A	40	
Wireless Independent Target System (WITS)	DVC 17-237/A & 17-237/A/1	AA BATT LITH	53,320	0	3,080	0	N/A	50,240	
		NSN: 6135-01-333-6101	\$18.19 Package of 12						

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WHO?



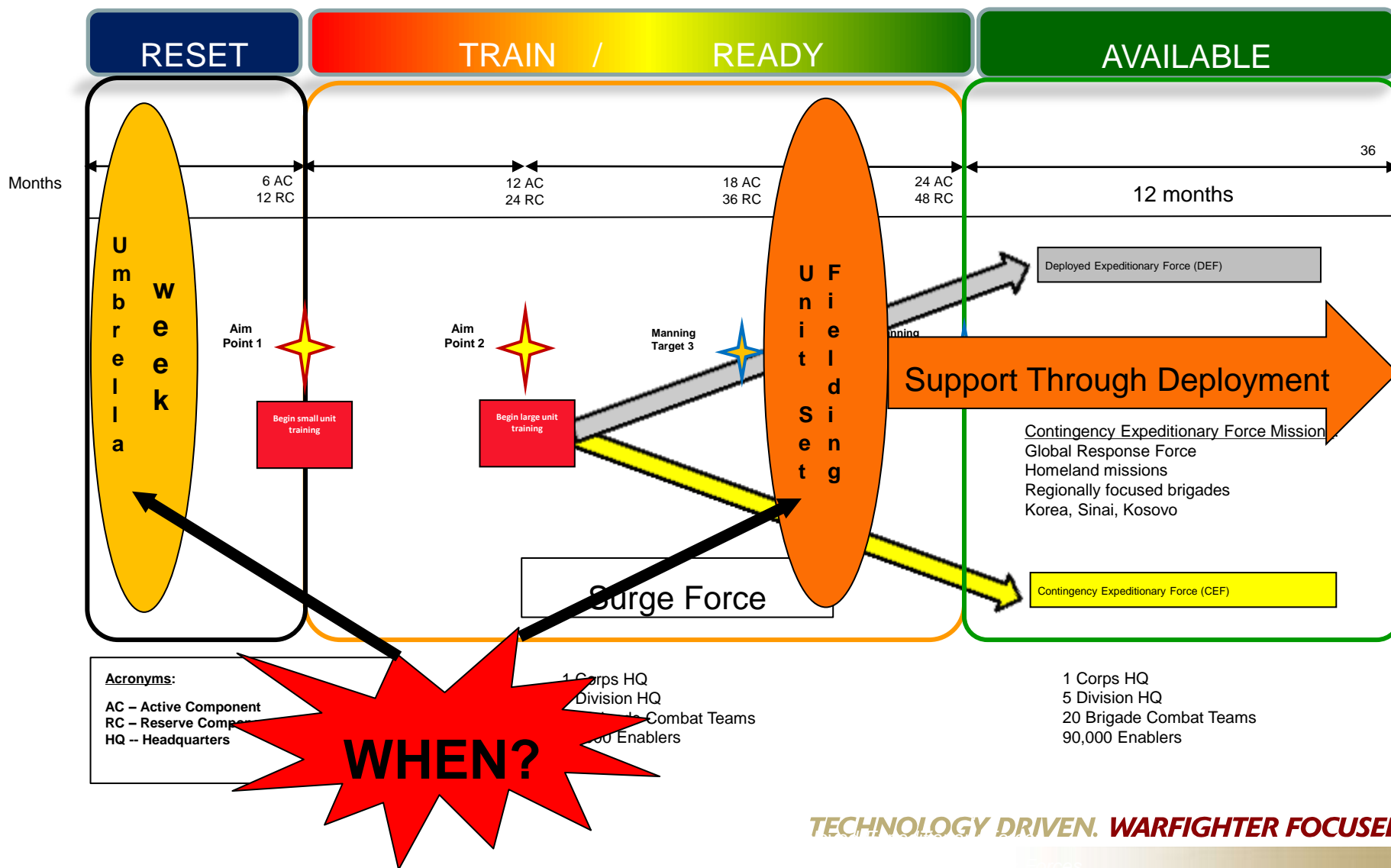
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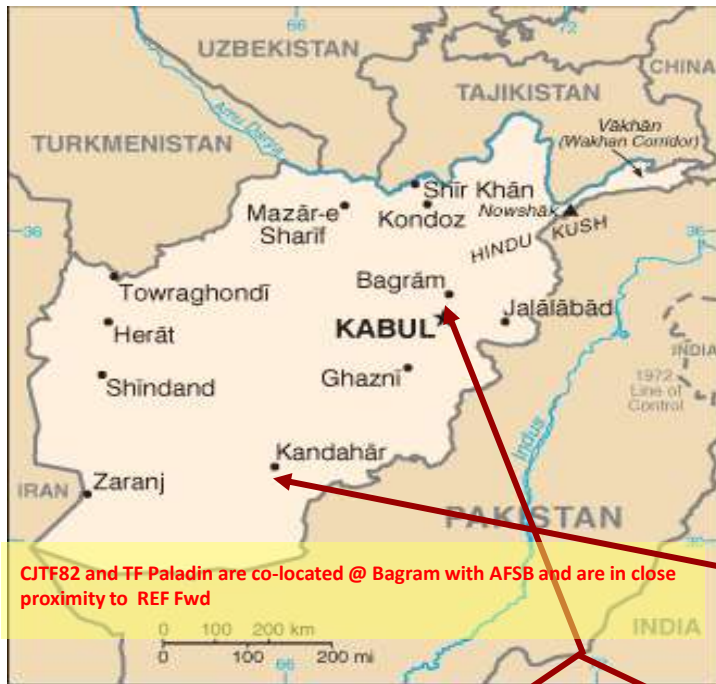
HOW?

- Responded to 1st Army East's request to provide critical GRRIP training to the deploying 86th IBCT
- Assisted the STCD directorate to test new ECM-Comms mitigation systems in country, by tapping into relationships with 86th IBCT to host CERDEC engineers
- Provided limited distribution of new solar-panel battery charging systems to Special Forces, 4/25th ABCT, 1/4th BCT, 27th IBCT, 86th IBCT and 42nd Division HQ
- Discovered vulnerabilities with sensor systems by reviewing INSUMs from theater and working with the directorate to start working a resolution
- Providing direct assistance to USARAK for real-world OH-58 communication problem and for Joint Base cross-domain information sharing
- Working with JIEDDO's "attack the network" team and elements from USASOC, SOCOM and JSOC on TTL technology development possibilities
- Developed or are developing relationships with 3/10th, 2/34th, 37th and 27th IBCTs for their upcoming deployments
- **Established formal relationship with CALL Umbrella Week and PEO-C3T USF process to be part of the ARFORGEN lifecycle**

What is ARFORGEN and how does CERDEC fit?

A versatile mix of tailorable and networked formations operating on a rotational model





OBJECTIVE: Support assigned Unit with S&T Advise and facilitate S&T support through operational assessments and reach back to RDECOM network of labs/RDECs

The S&T supports CJTF 82, TF Paladin, and the AFSB. A new S&T Team is going to support RC-South starting with this rotation.

Short list of projects include:

- ◆ Fuel Cell
- ◆ Improved Cold Weather Gear
- ◆ Wide FOV NVG
- ◆ Spider / Matrix

ON THE
GROUND

CJTF 82 S&T #2 (Sep 09- Mar 10)
Ldr - MAJ Anthony Douglas (ARL)
NCO - SFC Gary Reese (ARL)

TF Paladin (East) #8 (Sep 09- Mar 10)
Ldr LTC Keith Harvey (ARL)
NCOIC MSG Carl Flowers (ARDEC)

RC-South #1(Sep 09- Mar 10)
Ldr - MAJ Jared Novak (TARDEC)
NCO - SFC Jimmie Smith (ARL)
MAJ Victor Melendez (MRMC)

CJTF 82 S&T #3 (Feb - Aug10)
Ldr - LTC Victor Nakano (TARDEC)
NCO - MSG James Laferty (AMRDEC)

TF Paladin (East) # 9 (Mar - Sep 10)
Ldr LTC Thomas Kelley (AMRDEC)
NCOIC SSG Joshua Johnston (ARDEC)

RC-South #2(Sep 09- Mar 10)
Ldr - MAJ Brian Souhan (ARDEC)
NCO - SFC Jimmie Smith (ARL)
MAJ Robert Carter (MRMC)

Director, Quick Reaction Cell– Mr. Joe Johnson, (732) 427-0223

joe.e.johnson@us.army.mil

Lead Engineer/Director, QRC Cell- Current Ops South – Mr. Gregg Hennessy, (443) 861-1638

gregg.c.hennessy@mi.army.mil

Warfighter Support Office Lead- Mr. Troy Steward, (732) 281-7531

william.t.steward@us.army.mil

Program Analyst, Quick Reaction Cell- Brent Christensen, (732) 427-4635

Brent.Christensen@us.army.mil

RFI/Tasker Analyst – Mr. Mike Watts, (732) 427-3363

george.m.watts@us.army.mil