AF Engineer Robotic Requirements

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This Briefing is:
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Overview

- **Kudos to our Airmen...they're "all in" the current fight**
- **AF EOD robotics program**
- **New AF Emergency Management robotics initiative**
- **Number 1 AF Priority for robotics...airfield damage repair**
- **Closing remarks/summary**

Our Airmen are (still) Engaged in the Current Fight

- **AF transporters, contracting specialists, services teams and security forces are all on the ground supporting the current war effort**
  - **Convoying critical commodities, ensuring our troops are fed and routes and bases are secured**

- **Our Engineers are supporting Joint tasks...RED HORSE; building roads, repairing bridges and critical infrastructure...EOD; defeating the IED threat; working to deny the enemy resources to create IEDs...finding and destroying weapons caches, working as weapons intelligence team members to use forensics to identify bomb makers**

Airmen are members of the Joint team...”we’re all in”

HD-1/HD-1 AF Variant

Requirement

Requirement driven by feedback and lessons learned from deployed EOD techs. Procure and field a robot with the capability of increased operating distance, increased handling capability and ability to operate in current ECM environment.

Additional requirements include: ability to deliver current fielded specialized EOD tools (PAN, J-ROD, Powerhawk) as well as new EOD tool under development, e.g., Multi-shot IED Disrupter System (MIDS).

HD-1 (top pixs); HD-1 AF Variant (bottom pixs)

HD-1/HD-1 AF Variant Capabilities

Weighs approximately 220 pounds; not a MTRS. HD-1 robot initially fielded FY06/FY07 time-frame; improvements driven by operators. HD-1 AF Variant incorporates emerging radio technology; extends stand-off range; increased handling capability; extended operating time (enhanced battery); ability to reach below ground, rotating torso, presets, and ability to operate in electronic countermeasures (ECM) environment. Initial operator evaluation conducted Sep 09…final production configuration expected to be available mid-2010.

HD-1/HD-1 AF Variant Posturing

All HD-1 robots will be upgraded in FY2010/2011.

Planned posture: HD-1 AF Variant at each unit as base support robot (55) and postured on UTC 4F9X1 (88).

Expanding the use of Robotics (New AF Initiative)

- **The Emergency Management career field, in conjunction with other CE AFSs, is pursuing an initiative to integrate CBRN/TIC/TIM detection sensors/collectors on Unmanned Ground Robotics as an installation capability to mitigate CBRN/TIC/TIM incidents in support of the Incident Commander during in-garrison/deployed incidents.**

- **The proposed approach is a common robotic platform with plug & play sensor/collector payloads to meet this requirement.**

Airfield Damage Repair
The Challenge

- **Must repair 90’x5000’ Minimum Operating Strip (MOS) plus access routes**
  - **Multiple small craters (8-10’ diameter)**
  - **Multiple UXO environment**
  - **Minimum time-on-repair**

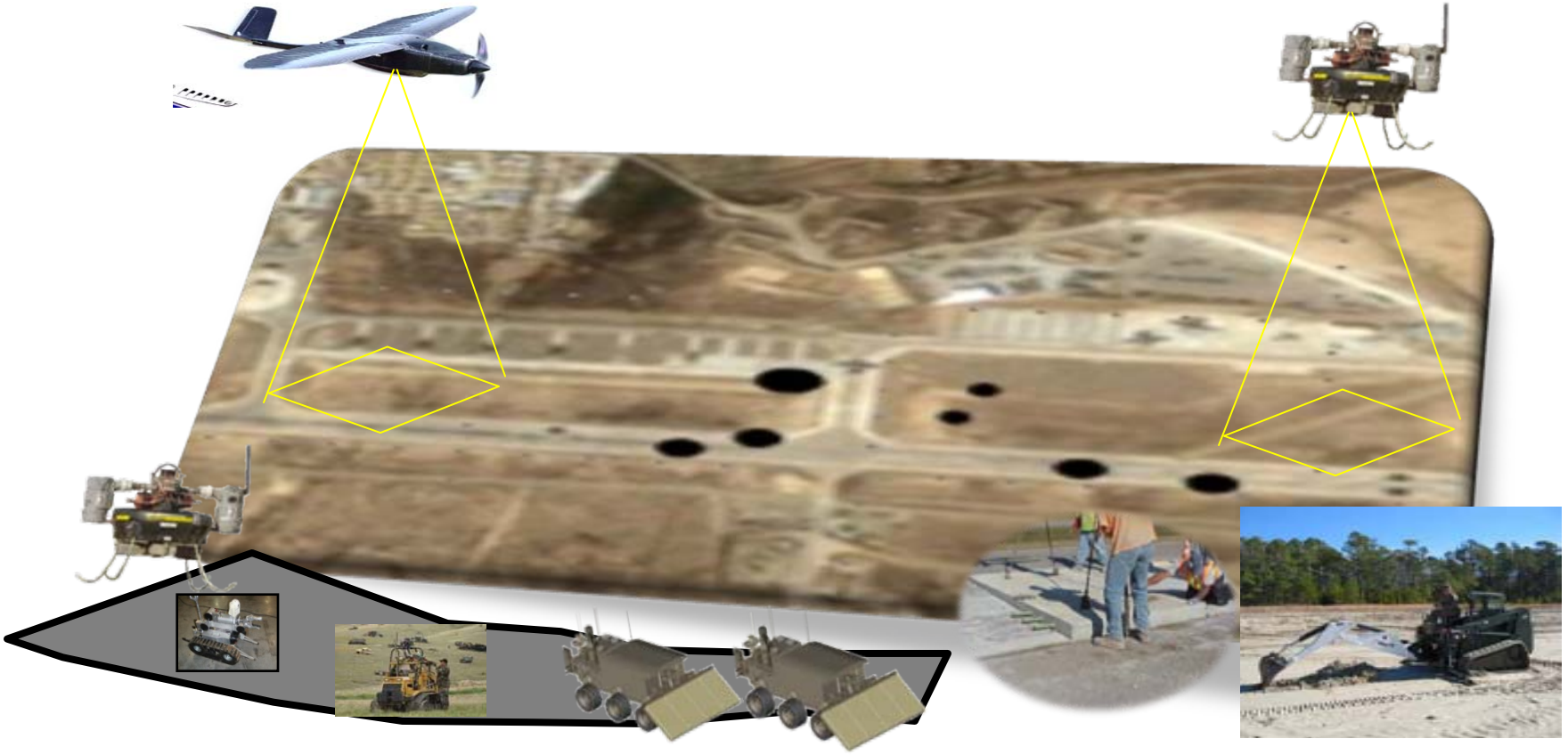
ADR Timeline/Desired Effects

- **Focus on PACOM base recovery after attack scenario**
- **Provide a faster, graphically linked assessment of the airfield surface damage**
  - **Minimum Airfield Operating Surface (MAOS), runways, taxiways, and ramps**
  - **ID, measure and locate 100s of craters and locate UXOs**
  - **Identify candidate MAOS for each aircraft type within 0.5 hours**
- **Clear UXO/repair MAOS within 4-6 hours after attack and 3.5 hours after MAOS selection & UXO clearing**
  - **100 small craters on runway & 100 on the MAOS**
  - **Support all assigned aircraft (fighters and heavies)**
  - **Improve quality/durability of repairs to extend lifespan of repairs**

Airfield Damage Repair (ADR)

1) Assess Runway Damage & Unexploded Ordnance (UXO)

2) Determine Minimum Airfield Operating Surface



3) Identify, Render Safe, Remove Up to 100 UXOs on Access Surfaces

4) Repair Up to 100 Craters on Runway and Up to 100 on Access Surfaces

Return Runway to Operational State for All Aircraft/4-6 Hrs

Closing Remarks/Summary

- **Our Airmen continue to support the current fight**
- **We (AF) will continue to look for opportunities in other AF functions to expand the use of robotics to perform dangerous and dirty missions...robotics can be a force multiplier**
- **We must continue to leverage emerging robotic technologies and successes in industry and other government agencies as we plan for future contingencies**