





Expeditionary Missions

SEA AIR SPACE 2021

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PMS 408 Program Overview 6 Lines of Effort





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Navy EOD – Strategic Vision

Mission

We eliminate explosive threats so the Fleet and Nation can fight and win - whenever, wherever, and however It chooses.





Vision

We envision a Nation undeterred by explosive threats.





Navy EOD – Our Contribution



In the Maritime Domain

- Provide Expeditionary Mine Countermeasures (ExMCM) warfighting capability
- Eliminate threats from sea and limpet mines, maritime IEDs, natural hazards and other man-made items
- Enable Freedom of Maneuver





Support to Great Power Competition

- <u>UUVs</u> Viperfish, Lionfish, MK 18 UUVs
- <u>ROVs</u> Maritime Expeditionary Standoff Response (MESR) System, EOD Response ROVs
- <u>Diving</u> Multi-Mission Underwater Breathing Apparatus (MMUBA), MK16 UBA
- <u>Diver Tools</u> Standoff Target Reacquire Identification Detection and Navigation Tool (STRIDENT), COTS Handheld Sonar, MK 15 Underwater Imaging System

How and When We Get There...







Joint Service EOD Robots







Robotics (Medium):

- Man-Transportable Robotic System (MTRS) II
- Tactical operations; transported to incident in EOD response vehicle; intended for in-depth recon and hazardous item prosecution



Robotics (Small):

• Dismounted operations; lightweight & backpackable; initial recon usage





Robotics (Large):

- Common Robotic System–Heavy (CRS-H)
- Base/Infrastructure operations; transported in large response vehicle; intended for max lift, widest-range of neutralization/render safe operations

Flexible Cyber Secure Radio (FlexCSR)

• Flexible, cybersecure radio with the ability to operate securely in four reconfigurable spectrum bands

Joint Service EOD Programs



JEOD Decision Support System



Support EOD Operations

- Provide near real-time information
- Mobile Applications

Ordnance

Locators



EOD Configured Items

EOD Publications



Delivery of urgent and periodic documented Render Safe, Neutralization, and Disposal procedures for U.S. as well as foreign mines, ordnance items, weapons systems, Improvised Explosive Devices (IEDs), Weapons of Mass Destruction (WMDs), and related explosive hazards.

EOD Modernization

Disrupt (SRSD)

Digital Imaging X-Ray

Generator(s)

Navy EOD equipment outfitting and product improvements

System

• In Service Engineering Agent responsible for engineering, test, maintenance, and logistics for EOD configured items; fielded tools/equipment sets





• Rapid Large Area Clearance (RLAC)

Standoff Render Safe &





JCREW I1B1



<u>Mission</u>: Provides next generation RCIED-jammer against existing and future advanced global threats with three variants:

- Mounted, Dismounted, and Fixed Site
- Open architecture System of Systems design; common HW/SW

<u>Category</u>: ACAT II, MDA delegated to PEO USC <u>Key system design features:</u>

- Open software defined radio architecture enables rapid evolution for urgent multi-function RF requirements
- Robust information assurance and security for FMS
- Flexible timing protocol and clean RF signals increases compatibility
- Able to utilize active, reactive, and protocol-based techniques





Where We Are Going

- Increased Signal Processing, Frequency Range, and Instantaneous Bandwidth (IBW) - Improving system capability for the next generation of CIED threats and multi-function RF requirements
- Common Open and Secure Software Development Environment -Reducing licensing costs and enables technique sharing across applicable EW platforms
- Enhanced User Interface Developing a new intuitive interface for increased capability
- **Distributed EW** Coordinating with ONR on proposed Ubiquitous Edge FNC
- Smart Resource Management Investigating AI/ML tailored use of system resources and improved compatibility



DRAKE 2.0



Urgent Warfighter Need: JCREW I1B1 system reprogrammed for CUAS mission in 7 Weeks <u>Mission:</u> DRAKE 2.0 configuration with improved radios, processors and display unit was the recommended solution to meet the non-kinetic requirements established in the N96 Afloat CUAS Top Level Requirements <u>Category</u>: ACAT IV

System Capabilities:

- Detect and Defeat
- Identify, Alert, and Track location
- Record events and examine via Log Analyzer software







Where We Are Going

DRAKE 2.0 uses an incremental approach via an open architecture design, and well-defined common standards. This SDR approach enables rapid upgrades of existing systems to field new technologies and capabilities.

- Inc 1 DRAKE 1.0 retrofit to DRAKE 2.0 Systems will be upgraded with Nextgen SDR and a more capable User Interface
- Inc 2 Optimization and Integration with Shipboard C2 Will include a shipboard docking station and optimized antennas
- Inc 3 Future threat Frequency Expansion



Enabling Technology Investments



Re-configuring ATR In-Theater Using Data Repository Reachback (RAIDRR)



Other FNCs / Initiatives complementing this connectivity

Cognitive Router



Future Naval Capability

Technology Deployment Agreements

- Low Observable No Collateral Damage Neutralization
- Ensuring Defense in Operating System Resilience

New Start Candidates

- Reconfiguring ATR In-Theater using Data Repository Reachback (RAIDRR)
- Cognitive Router
- Rapid buried/Obscured Mine Neutralization
- Ubiquitous Edge

OTHER S&T INTERACTIONS

- JEOD Technology Plan (ONR funded projects)
- Rapid Innovation Fund (RIF)
- Small Business Innovative Research (SBIR)
- Naval Innovative Science and Engineering (NISE)
- Industry Internal R&D (IRAD)
- Foreign Comparative Test
- OSD RRTO/DTRA/DARPA
- Other Government Activities