The forecast data is for planning purposes, does not represent a pre-solicitation synopsis, does not constitute an invitation for bid or request for proposal, and is not a commitment by the government to purchase the desired products and services.
TOTAL ACTIONS BRIEFED: 8

- Tactical Disablement System (TACDS)
- Common Analytical Laboratory System (CALS)
- Man-Portable Radiological Detection System (MRDS)
- Manned, Mounted Platform Radiological Detection System (M2PRDS)
- Radioisotope Identification Device Family of Systems (RIID FoS)
- 20th CBRNE COTS Sustainment
- C2CRE-B COTS Sustainment
- USARC COTS Sustainment

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TACDS Overview

Tactical Disablement System (TACDS) is a Joint Service acquisition category (ACAT) III program that will provide specific tools and capabilities to defeat and/or disable chemical and biological agents in both bulk and munition configurations. End users include the US Army chemical units and the Special Operations Command (SOCOM). The system will provide the ability to access and degrade or destroy CB agents found on the battlefield. TACDS will integrate new methods from COTS and emerging technologies in order to meet the user needs for a man-portable, easily transportable disablement device(s).

- TACDS received MDD approval Dec. 2016
- Milestone A planned for 3rd Quarter FY17
OPPORTUNITY

Technology Development for TACDS: Refinement of technologies evaluated by the Analysis of Alternatives (AoA)

ESTIMATED SOLICITATION RELEASE DATE: Late 2017

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The Common Analytical Laboratory System (CALS) is a joint service acquisition category (ACAT) III program that will provide a suite of common, modular, and transportable/mobile analytical laboratory systems to support Department of Defense (DoD) field analytic units. End users of CALS include field analytic units within the US Army, Navy, Air Force, Marine Corps, and the National Guard Bureau. The system will provide field confirmatory- and theater validation-level analysis capabilities to support the identification of chemical, biological, and radiological (CBR) materials in environmental samples. CALS integrates a common suite of commercial-and government-off-the-shelf (COTS/GOTS) components into user-specific transportable/mobile platform variants.
OPPORTUNITY

TITLE: Common Analytical Laboratory System (CALS)

CONTRACT TYPE: Fixed Price

ESTIMATED RANGE: $80M-$281 M

CONTRACTING CONTACT:
ACC-APG, Ms. Sharon Snow, 410.436-4448, sharon.l.snow.civ@mail.mil

SOLICITATION #: JE-RDAP Order

ESTIMATED SOLICITATION RELEASE DATE: 3QFY17
### MAN-PORTABLE RADIOLOGICAL DETECTION SYSTEM (MRDS)

**Mission:**
- Provide networked, improved RN detection, localization, and presumptive and field-confirmatory identification capabilities in near-real-time to enhance tactical level situational awareness.

**Detection/Identification**
- Hands-Free Detector (Backpack): Detects neutron and gamma and presumptively identify SNM.
- High Resolution RIID: Allows field-confirmation of SNM.

### Situational Awareness Tools

- **Laptops & Mobile Field Kit – CBRN Software:**
  - COTS laptops with Gov’t owned software DTRA & Asynchrony developed from EOD software
  - Can remotely monitor and track sensors; draw feature to indicate areas of interest inside the facility; and a chat feature to keep teams and command post informed

### Communications

- COTS radios provide C2
- Used as “breadcrumbs” to retransmit from inside facilities with 1’ thick, solid, poured concrete walls

### Miscellaneous

- NET Warrior – Hub, Cables, End User Device, Conformal Battery
- Transportation Cases
OPPORTUNITY

TITLE: Man-Portable Radiological Detection System (MRDS)

CONTRACT TYPE: TBD

ESTIMATED RANGE: TBD

CONTRACTING CONTACT: Diane Dei, 410-436-4478

SOLICITATION #: JE-RDAP Order

ESTIMATED SOLICITATION RELEASE DATE: TBD
MANNED, MOUNTED PLATFORM RADIOLOGICAL DETECTION SYSTEM (M2PRDS)

Overview:
M2PRDS will provide ruggedized, networkable detectors with a wide operating range of detection and prompt neutron/gamma, that can be integrated into vehicles, fixed sites, and ships to provide warning and situational awareness for crews and personnel, and support mounted Radiological & Nuclear (RN) Reconnaissance and Surveillance.

Description:
• Increment I leveraging scheduled NBCRV Sensor Suite Upgrade to replace the obsolescing RN sensors (VDR-2 & UDR-13) and provide upgrades to align capability with NBCRV mission set
  - Current fielded systems do not provide standoff/remote/indirect recon & surveillance capability for vehicles, greatly limited versus available technology
  - Vehicle internally-mounted solution to be usable across Army platforms
• Future increments to address shipboard air monitoring and Rotary Wing platforms

Legacy Systems:
• VDR-2 obsolete in 2020
  - Depot stock low, systems are already being cannibalized
  - UDR-13 performance issues, obsolete in 2026
• Legacy systems designed originally for dismounted mission

Replaces equipment based on Cold War technology and tactics
OPPORTUNITY

TITLE: Manned, Mounted Platform Radiological Detection System (M2PRDS)

CONTRACT TYPE: TBD

ESTIMATED RANGE: TBD

CONTRACTING CONTACT: Debbie Abbruzzese, 410-436-2554

SOLICITATION #: JE-RDAP Order

ESTIMATED SOLICITATION RELEASE DATE: FY18

The forecast data is for planning purposes, does not represent a pre-solicitation synopsis, does not constitute an invitation for bid or request for proposal, and is not a commitment by the government to purchase the desired products and services.
<table>
<thead>
<tr>
<th>RIID FAMILY OF SYSTEMS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>High Accuracy RIID</strong></td>
</tr>
<tr>
<td>• Only technological means to provide field confirmation despite issues that restrict its operational suitability to Army Technical Forces and USAF AFRAT</td>
</tr>
<tr>
<td>• Supports Sensitive Site Exploitation and other technical missions</td>
</tr>
<tr>
<td>• Program will address shortfalls in current COTS solutions (e.g. Ruggedized, able to handle deployment operations and withstand temperature variations) thru a developmental program to replace MRDS COTS systems that are estimated to only have a 10 year lifecycle</td>
</tr>
<tr>
<td><strong>Medium Accuracy RIID</strong></td>
</tr>
<tr>
<td>• Better energy resolution than NaI RIIDs (6% gamma) to support high confidence presumptive ID to upgrade Dismounted Recon SKO capability</td>
</tr>
<tr>
<td>• Available technologies/energy resolution: LaBr (3% gamma), CLYC (4% for Gamma &amp; neutron), CZT (1-1.5% gamma)</td>
</tr>
<tr>
<td>• Networkable: enables sending of spectrum to higher headquarters after assessment of sensitive sites and completion of initial entry operations to prioritize exploitation operations</td>
</tr>
<tr>
<td>• Leverages off of results from JPEO JCACS ATD</td>
</tr>
<tr>
<td><strong>Low Accuracy RIID</strong></td>
</tr>
<tr>
<td>• Modernization of service’s current Sodium Iodide (NaI) RIIDs; many purchased after 9-11 with O&amp;M and no sustainment (repair parts, maintenance contract or calibration, etc.)</td>
</tr>
<tr>
<td>• Networkable: To be determined based on requirements established by the RN ICT.</td>
</tr>
<tr>
<td>• May require modification to meet possible networking requirements.</td>
</tr>
<tr>
<td><strong>Directional RIID</strong></td>
</tr>
<tr>
<td>• Provides indication of direction of location of the isotopes of interest in addition to medium resolution presumptive identification capability either through visualization on tablet or direction arrow on sensor</td>
</tr>
<tr>
<td>• Available technologies: CZT or HPGe (0.5% gamma)</td>
</tr>
<tr>
<td>• Networkable: to send directionality to higher headquarters or characterization team to support exploitation operations</td>
</tr>
<tr>
<td>• Leverages off of results from JPEO JCACS ATD</td>
</tr>
<tr>
<td>• Use: TBD – may be specialty equipment only or combined with Medium RIID depending on cost</td>
</tr>
<tr>
<td><strong>MINI RIID</strong></td>
</tr>
<tr>
<td>• Cell phone size low resolution RIID designed to provide low cost presumptive ID of Isotopes for forces who have a probability of encountering radiological materials during their mission</td>
</tr>
<tr>
<td>• Networkable: to send spectrum to higher headquarters so the location can be prioritized and added to target list of potential sensitive sites requiring exploitation</td>
</tr>
<tr>
<td>• Leverages development off of DARPA Sigma project that finishes in FY17</td>
</tr>
</tbody>
</table>
OPPORTUNITY

TITLE: Radioisotope Identification Device Family of Systems (RIID FoS)

CONTRACT TYPE: TBD

ESTIMATED RANGE: TBD

CONTRACTING CONTACT: Debbie Abbruzzese, 410-436-2554

SOLICITATION #: JE-RDAP Order

ESTIMATED SOLICITATION RELEASE DATE: TBD

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PROGRAM OVERVIEW

The Joint Product Manager - Chemical, Biological, Radiological, Nuclear, and Explosives (CBRNE) Analytics & Response Systems (JPdM-CBRNE A&RS) provides Contractor Logistics Support (CLS) services for Commercial Off-the-Shelf (COTS) equipment used by CBRNE Analytical and Remediation Activity (CARA), Nuclear Disablement Team (NDT), and 1st Area Medical Laboratory (AML) of the 20th CBRNE Command. These services include sustainment, calibration, maintenance and repair of equipment and an asset management system to provide total supply, service and maintenance support. This includes equipment repair, shipping, inventory, shelf life and warranty management, calibration, equipment service contract information, and preventive maintenance scheduling. To maintain readiness, the contractor shall provide onsite and offsite support services for the assets each unit.

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OPPORTUNITY

TITLE: 20th CBRNE COTS Sustainment

CONTRACT TYPE: Cost Plus Fixed Fee

ESTIMATED RANGE: Restricted Suite (Small Business Set Aside)

CONTRACTING CONTACT: ACC-APG, Mr. Eric Braerman, eric.w.Braerman.civ@mail.mil

SOLICITATION #: JE-CLaSS Order

ESTIMATED SOLICITATION RELEASE DATE: 3QFY17

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The Joint Product Manager - Chemical, Biological, Radiological, Nuclear, and Explosives (CBRNE) Analytics & Response Systems (JPdM-CBRNE A&RS) provides Contractor Logistics Support (CLS) services for Commercial Off-the-Shelf (COTS) equipment sets used by select Army National Guard Bureau (NGB) organizations for the Command and Control Chemical, Biological, Radiological, Nuclear Response Element –B (C2CRE-B) mission. These services include sustainment support over the life cycle of the equipment sets and refresh/recertification support following a unit’s relief from the CBRN Response Enterprise mission. The follow on sustainment period and equipment refresh phases are for the Search and Rescue (S&R), Mass Casualty Decontamination (MCD), RECON and Medical Personal Protective Equipment (PPE) sets.

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OPPORTUNITY

TITLE: C2CRE-B COTS Sustainment

CONTRACT TYPE: Cost Plus Fixed Fee

ESTIMATED RANGE: Restricted Suite (Small Business Set Aside)

CONTRACTING CONTACT: ACC-APG, Alex Schupp, alex.m.schupp.civ@mail.mil

SOLICITATION #: JE-CLaSS Order

ESTIMATED SOLICITATION RELEASE DATE: 2QFY17
The Joint Product Manager - Chemical, Biological, Radiological, Nuclear, and Explosives (CBRNE) Analytics & Response Systems (JPdM-CBRNE A&RS) provides Contractor Logistics Support (CLS) services for Commercial Off-the-Shelf (COTS) equipment sets used by select organizations for the United States Army Reserve Command (USARC) mission. These services include sustainment support over the life cycle of the equipment sets and refresh/recertification support following a unit’s relief from the CBRN Response Enterprise mission. The follow on sustainment period and equipment refresh phases are for the Search and Rescue (S&R), Mass Casualty Decontamination (MCD), RECON and Medical Personal Protective Equipment (PPE) sets.

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**OPPORTUNITY**

**TITLE:** USARC COTS Sustainment

**CONTRACT TYPE:** Cost Plus Fixed Fee

**ESTIMATED RANGE:** Restricted Suite (Small Business Set Aside)

**CONTRACTING CONTACT:**
ACC-APG, Mr. Eric Braerman, eric.w.Braerman.civ@mail.mil

**SOLICITATION #:** JE-CLaSS Order

**ESTIMATED SOLICITATION RELEASE DATE:** 4QFY17

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Defense Threat Reduction Agency (DTRA)
Nuclear Detection Division
Current R&D and Future Directions

Lt Col Steven Webber
Defense Threat Reduction Agency

Given at:

APBI
Aberdeen Proving Ground, MD
2 February 2017
Nuclear Detection R&D Across the U.S. Government


Department of Energy, National Nuclear Security Administration (NNSA): CONUS and OCONUS, Permissive Environments, Stockpile Stewardship, Emergency Response, and Nuclear Nonproliferation
Expect new strategic guidance over the next several years
DTRA Historical Lineage

1942

- Manhattan Engineering District 1942-47
- Armed Forces Special Weapons Project 1947-59
- Defense Atomic Support Agency 1959-71
- Defense Nuclear Agency 1971-96
- Defense Special Weapons Agency 1996-98
- Defense Threat Reduction Agency 1998-

1998

- Arms Control
- Cooperative Threat Reduction
- Nuclear Weapons Expertise
- Combat Support
- Chem-Bio Defense

2003

- New in 2015! Nuclear Enterprise Support Directorate (J10)

2006

2011

UNCLASSIFIED
DTRA and J9 Organization

- **DTRA MISSION**: safeguards the United States and its allies from global Weapons of Mass Destruction (WMD) threats by integrating, synchronizing and providing expertise, technologies and capabilities.

J9

- J9BA – Basic and Applied Sciences Dept
- J9CB – Chemical / Biological Technologies Dept
- J9CX – Counter WMD Technologies Dept
- J9NT – Nuclear Technologies Department
- J9IS – Information Sciences & Applications Dept

**NT Mission Statement**: Research, develop, and demonstrate technologies that support a safe, secure, and effective U.S. nuclear deterrent and prevent nuclear or radiological attacks against the U.S. or its allies.
Nuclear Tech Dept (NT) key strategies

Nuclear weapons effects: Increase fidelity of direct physical effects to support limited nuclear exchanges, urban environments, and mobile targets; develop Consequences of Execution framework that considers 2nd and 3rd order nuclear weapons effects; and develop theater nuclear operations planning tools that support conventional warfare in a nuclear environment.

Nuclear survivability: Develop nuclear survivability standards and handbooks; improve nuclear environments experimental test capabilities; implement nuclear survivability assessments; and develop radiation-hardened electronics.

Nuclear forensics: Complete Discreet Oculus prompt diagnostics system; develop forward-deployable capability to collect and analyze post-detonation materials and gases; and increase U.S. ability to infer weapon design from expanded forensics capability.

Nuclear threat detection: Improve range and identification of radiation detection; develop non-radiation technologies to detect and characterize nuclear threats; and develop capability to detect and characterize evasive and low-yield nuclear testing.
Nuclear Detection R&D Strategic Mission

Advance the state of the art in nuclear detection, monitoring and verification technologies through focused R&D to provide DoD with enabling tools to combat nuclear threats.

**AM Strategy**
Develop capability to confidently monitor evasive and low-yield nuclear testing, and verify treaty compliance.

**AW Strategy**
Develop and exploit non-radiation signatures to expand nuclear detection capabilities in time and space.

**AV Strategy**
Develop cutting edge radiation detection equipment for local-area search, diagnostics, and contamination avoidance.

J9-NTD’s technologies provide decision space to national leadership, increase odds of friendly mission accomplishment, and reduce overall risk.
## R&D Strategy Breakdown

<table>
<thead>
<tr>
<th>Weapons Cycle</th>
<th>Planning</th>
<th>Acquisition</th>
<th>Exploitation</th>
<th>Delivery</th>
<th>Execution</th>
<th>Outcome</th>
</tr>
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<tbody>
<tr>
<td><img src="image1.png" alt="Diagram" /></td>
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<td><img src="image6.png" alt="Diagram" /></td>
<td><img src="image7.png" alt="Diagram" /></td>
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<tr>
<td>• Seismic detection</td>
<td>• Signature investigation</td>
<td>• Loss of custody detection</td>
<td>• <em>Counter-proliferation</em></td>
<td>• Wide-area search</td>
<td>• Diagnostics</td>
<td>• Contamination avoidance</td>
</tr>
<tr>
<td>• Gas collection</td>
<td></td>
<td></td>
<td></td>
<td>• Situational awareness</td>
<td></td>
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<tr>
<td>• Open skies</td>
<td></td>
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<td></td>
<td>• Local search</td>
<td></td>
<td></td>
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<tr>
<td>• <em>Counter-proliferation</em></td>
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</tbody>
</table>
Our strategy addresses nuclear threats from state actors and terrorist organizations.
• Radiation Detection portfolio will aim to deliver viable prototypes directly to Warfighter and other users.

• Future areas of interest for Radiation Detection portfolio include:
  – Low-visibility, wearable-detectors
  – High-resolution radiation imagers (gamma and neutron)
  – Integration of radiation sensors and algorithms on unmanned platforms
  – System integration with best-in-class isotope ID algorithms, situational awareness software, communication architectures

• Enhance capabilities of DTRA’s Testing Evaluation Assessment and Monitoring Site (TEAMS) to facilitate in-field device testing and validation, and realistic user training campaigns.
BAA FY18 – 6 topics

- Enhanced Wide-area Measurement Capability Through Multi-dimensional Sensing And Data Fusion
- Enabling Technologies For Nuclear Detection
- Wide-area Search
- Loss Of Custody Detection
- Yield Determination Of Small Underground Nuclear Explosions
- Field Monitoring Of Radionuclide Gases And Particulates From Nuclear Testing
Questions / Contact Info

Lt Col Steven Webber
Defense Threat Reduction Agency
Deputy, Nuclear Detection Division

steven.webber@us.af.mil
703-767-8788