

DTRA JSTO/JPEO-CBD 30 Year Roadmaps
Current as of 20 April 2015

The JPEO-CBD, in conjunction with Defense Threat Reduction Agency (DTRA) and Joint Science and Technology Office (JSTO), have developed 30 year roadmaps depicting Science and Technology efforts and Advanced Development Programs aimed at providing needed capability to the War Fighter. The roadmaps were developed by the Joint Program Managers and their DTRA/JSTO Science and Technology counterparts. The roadmaps were developed to visualize how the current and future Science and Technology and Advanced Development Programs progress and transition over time to fulfill War Fighter capability gaps.

The roadmaps are divided into Core Capability areas as defined by the Joint Requirements Office (JRO): Respiratory and Ocular Protection, Percutaneous Protection, Expeditionary Collective Protection, Personnel Contamination Mitigation, Materiel Contamination Mitigation, Biological Detection, Chemical Detection, Warning and Reporting, Decision Analysis and Management, Medical Diagnostics, Biological Prophylaxis, Chemical Prophylaxis, Biological Therapeutics, Chemical Therapeutics, Expeditionary Analytics and Radiological Detection.

The 30-year roadmaps are not an end state but rather a tool to assist in making management and funding decisions in order to provide the most valuable CBRN capability to the Warfighter within our budgetary constraints. The 30-year planning effort will provide U.S. Government, Industry, academia, and international partners insight in the JPEO-CBD and Defense Threat Reduction Agency/Joint Science and Technology Office projected interests.

The roadmaps are an indication of where we might be in 30 years based on current Science and Technology. JPEO-CBD and DTRA/JSTO are looking to industry, academia, and international partners to assist in reaching or exceeding the current targets and showing us the technological possibilities to redefine the targets and endpoints. We hope this major undertaking will encourage industry to invest in innovative solutions for near, mid, and far term capability gaps.

The 30 Year Roadmaps are considered forecast data for planning purposes, do not represent a pre-solicitation synopsis, do not constitute an invitation for bid or request for proposal, and are not a commitment by the government to purchase the desired products and services

The 30 Year Roadmap document includes the roadmaps, Capabilities and Capability Gaps, Modernization Goals, S&T Needs and Technology Needs for each Core Capability Area

Please direct inquiries to the JPEO Strategic Plans and Concepts Team (Elaine Stewart-Craig and Lowry Brooks for additional information).

UNCLASSIFIED



Chemical and Biological Defense Program

DTRA JSTO/JPEO-CBD

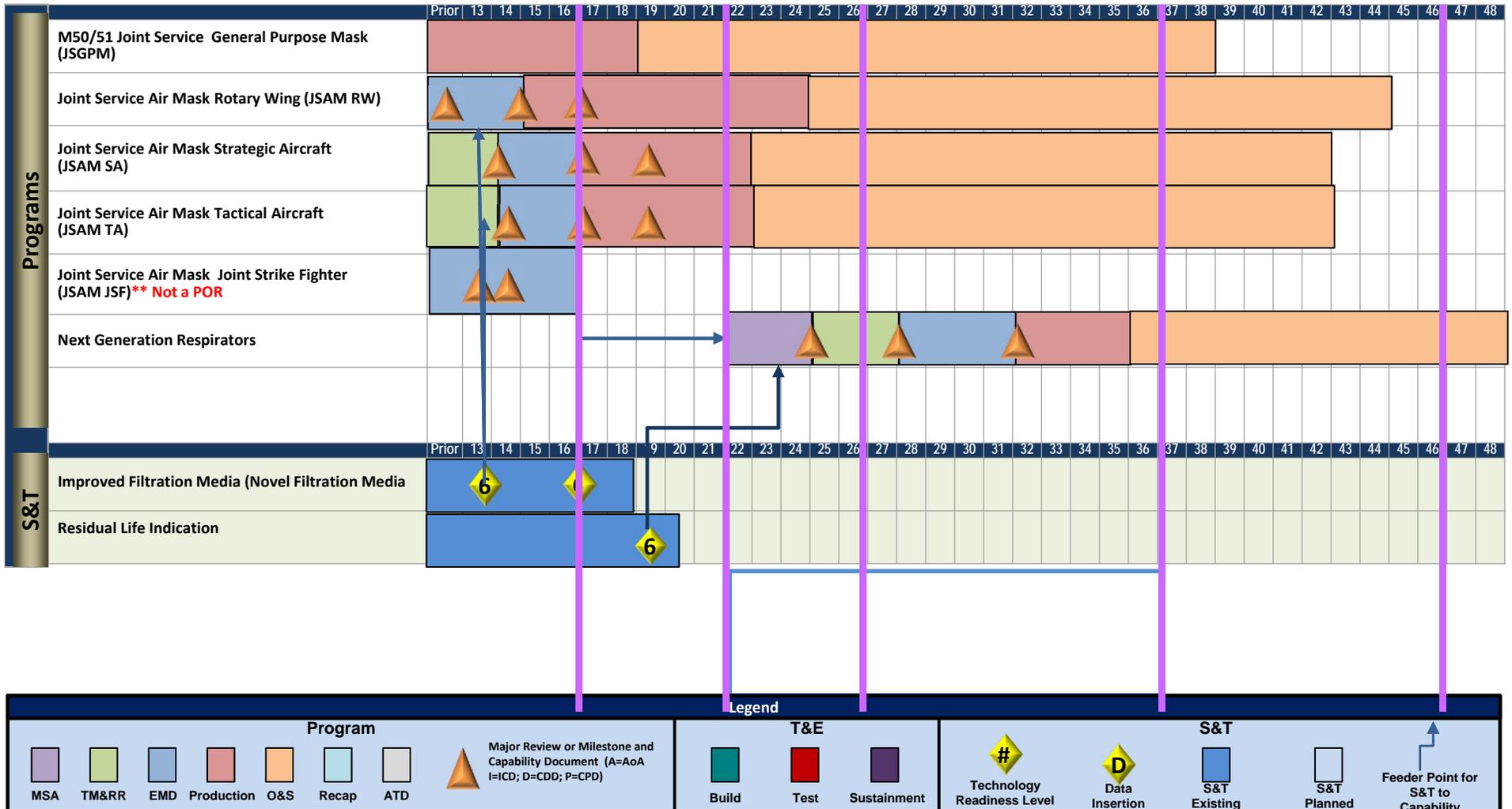
30 Year Roadmaps

Current as of 20 April 2015

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Respiratory and Ocular Protection



Current as of 20 April 2015

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Respiratory and Ocular Protection: Capability and Capability Gaps

- **Current Capability:**
 - Provides individual respiratory, ocular and percutaneous protection above the neck from CBRN threats and some TIM/TIC agents
- **JRO Modernization Goals:**
 - Develop Respiratory and Ocular protection materiel solutions which maximize protection while minimizing physical and thermal burdens.
 - Increase protection of TIM/TIC agents
 - Improve CBRN and TIM/TIC protection while decreasing breathing effort
- **Capability Gaps:**
 - Physiological burden degrades mission performance
 - Incomplete protection against aerosols and liquids
 - Incomplete protection against TIM/TIC agents

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Respiratory and Ocular Protection: Mid and Far-Term Modernization Goals

- Mid-Term (FY17-20):
 - Commence fielding of the JSAM RW to provide improved CBRN protection to rotary wing aircrew members
 - JSAM RW (Full Rate Production: 4Q FY17)
 - Continue development and begin fielding of specialized masks for aircrews of strategic and tactical aircraft to provide improved CBRN protection to meet their particular mission envelopes.
 - JSAM SA (Milestone C: 4Q FY16)
 - JSAM TA (Milestone C: 4Q FY16)

- Far-Term (FY21+):
 - Complete fielding of JSAM RW, JSAM TA, and JSAM SA
 - Field filter shelf-life indicators and novel filter media with enhanced TIC/TIM protection
 - Develop the next generation of respirators that will increase CBRN protection while reducing physiological burdens, decrease breathing effort and is integrated to a ballistic protection helmet
 - Next Generation Respirators (Milestone A: 1Q FY25)

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Respiratory and Ocular Protection: S&T Focus Areas

- Which gaps are we addressing?
 - Incomplete protection against TIMs
 - Limited compatibility with aircrew mission sets
- What S&T efforts are planned or on-going?
 - Dynamic Multifunctional Materials for a Second Skin
 - Multifunctional Materials for Protection
 - All-Hazards Integrated Protection
- Which program (s) does the S&T support
 - JSGPM
 - NGMLT
- When is the S&T needed?
 - FY15 - FY19
- S&T “push” efforts

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Respiratory and Ocular Protection: Technology Needs

- Which gaps are we addressing?
 - Physiological burdens which degrade mission performance
 - Limited capability with aircrew mission sets
 - Incomplete protection against TIM/TIC
- What Enablers are needed?
 - Improved Filter Media
 - Helmet Integration
- When is the Enabler needed?
 - Improved Filtration Media FY22
 - Helmet Integration FY28
- What Innovations are needed?
 - Filter material that provides more protection while reducing breathing effort
 - Mask mounted to the ballistic helmet that provides CBRN filtration and full face ballistic protection.

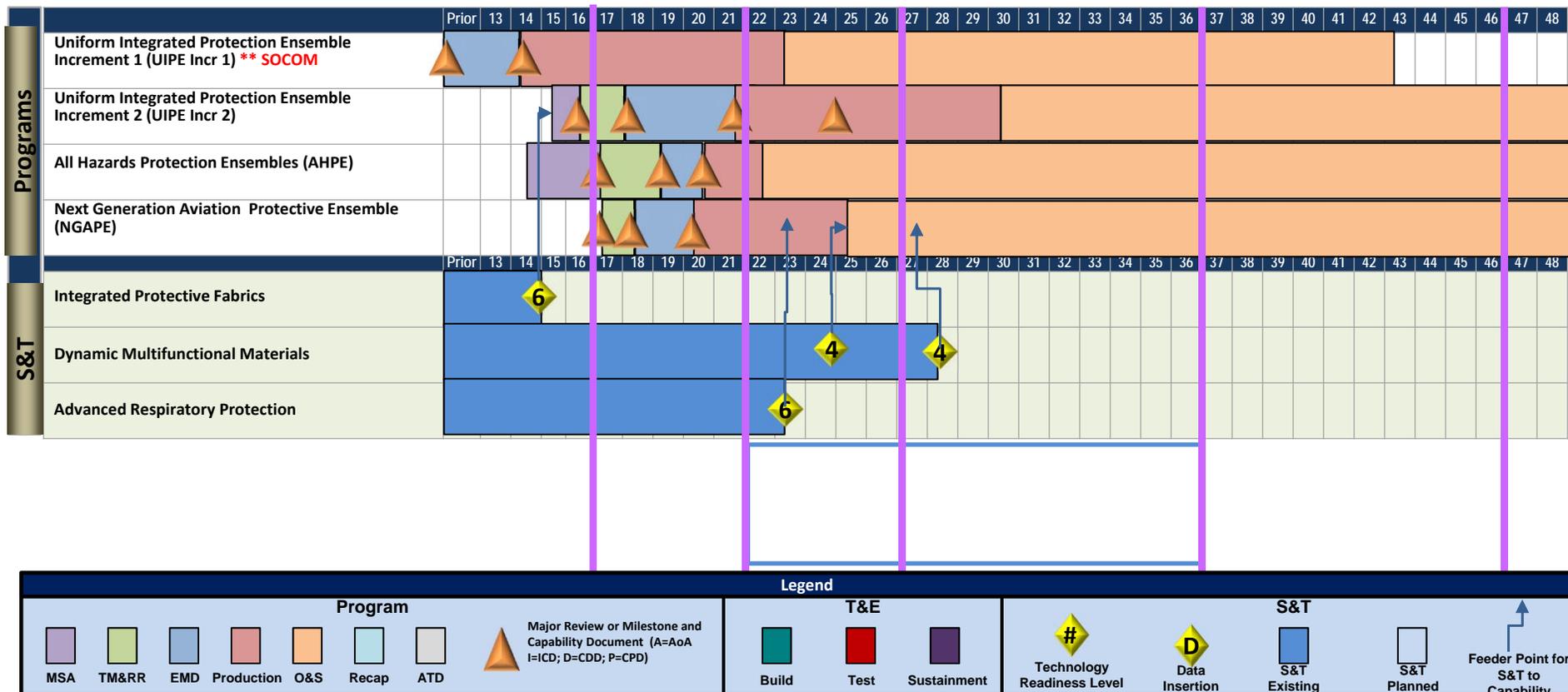
The forecast data is for planning purposes, does not represent a pre-solicitation synopsis, does not constitute an invitation for bid or request for proposal, and is not a commitment by the government to purchase the desired products and services

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

Respiratory and Ocular Protection

- DTRA: Dr. Charles Bass, Charles.bass@dtra.mil, 703-767-3371
- JPEO: Mr. Scott Paris, scott.paris@usmc.mil, 703-681-9616

Percutaneous Protection



Current as of 20 April 2015

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Percutaneous Protection: Capability and Capability Gaps

- **Current Capability:**
 - 24 hours of protection after 45 days of wear against traditional chemical warfare agents
 - Retains protection after exposure to Petroleum, Oils, and Lubricants and environmental contaminants
- **JRO Modernization Goals:**
 - Develop percutaneous protection materiel solutions which maximize protection while minimizing physical and thermal burdens.
 - Minimize degradation of the material in all environmental conditions.
 - Increase protection of TIM/TIC agents
 - Develop a Level A protective ensemble suitable for tactical and non-tactical emergency situation meeting OSHA standards
- **Capability Gaps:**
 - Physiological burdens degrade mission performance
 - Incomplete protection against aerosols
 - Incomplete protection against TIM/TIC agents

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Percutaneous Protection: Mid and Far-Term Modernization Goals

- Mid-Term (FY17-20):
 - Develop affordable ground and aircrew ensembles that offer significantly reduced thermal burden, reduced physical encumbrance, increased CBRN protection, with long shelf and service life, and minimum logistics footprint
 - UIPE II (Milestone B: 4Q FY17)
 - NGAPE (Milestone B: 2Q FY18)
 - Develop a Level A protective ensemble suitable for tactical and non-tactical emergency situation meeting OSHA standards
 - AHPE (Milestone B: 1Q FY19)

- Far-Term (FY21+):
 - Field improved ground and aircrew ensembles that offer significantly reduced thermal burden, reduced physical encumbrance, increased CBRN protection, with long shelf and service life, and minimum logistics footprints
 - UIPE II (Milestone B: 4Q FY17)
 - NGAPE (Milestone B: 2Q FY18)
 - Field a Level A protective ensemble suitable for tactical and non-tactical emergency situation meeting OSHA standards
 - AHPE (Milestone C: 1Q FY21)

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Percutaneous Protection: S&T Focus Areas

- Which gaps are we addressing?
 - Unacceptable physiological burden degrades mission performance
 - Incomplete protection against aerosols
- What S&T efforts are planned or on-going?
 - Integrated Protective Fabrics
 - Advanced Respiratory Protection
 - Multifunctional Materials for Protection
 - All-Hazards Integrated Protection (includes ATD)
 - Dynamic Multifunctional Materials for a Second Skin
- Which program (s) does the S&T support
 - UIPE
 - Next Generation Aviation Protective Ensemble (NGAPE)
- When is the S&T needed?
 - FY15 - FY19
 - NGAPE (Production Begins FY20)
 - Dynamic Multifunctional Materials
 - FY27 FY30
- S&T “push” efforts
 - Multifunctional Materials for Protection, Dynamic Multifunctional Materials for a Second Skin

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Percutaneous Protection: Technology Needs

- Which gaps are we addressing?
 - Unacceptable Physiological burdens which degrade mission performance
 - Incomplete protection against aerosols
 - Incomplete protection against TIM/TIC
- What Enablers are needed?
 - More dynamic materials
- When is the Enabler needed?
 - MS B
 - UIPE II: FY17/18
 - AHPE: FY18/19
 - NGAPE: FY18
- What Innovations are needed?
 - Materials that can be used as standard field uniforms while providing CBRN protection

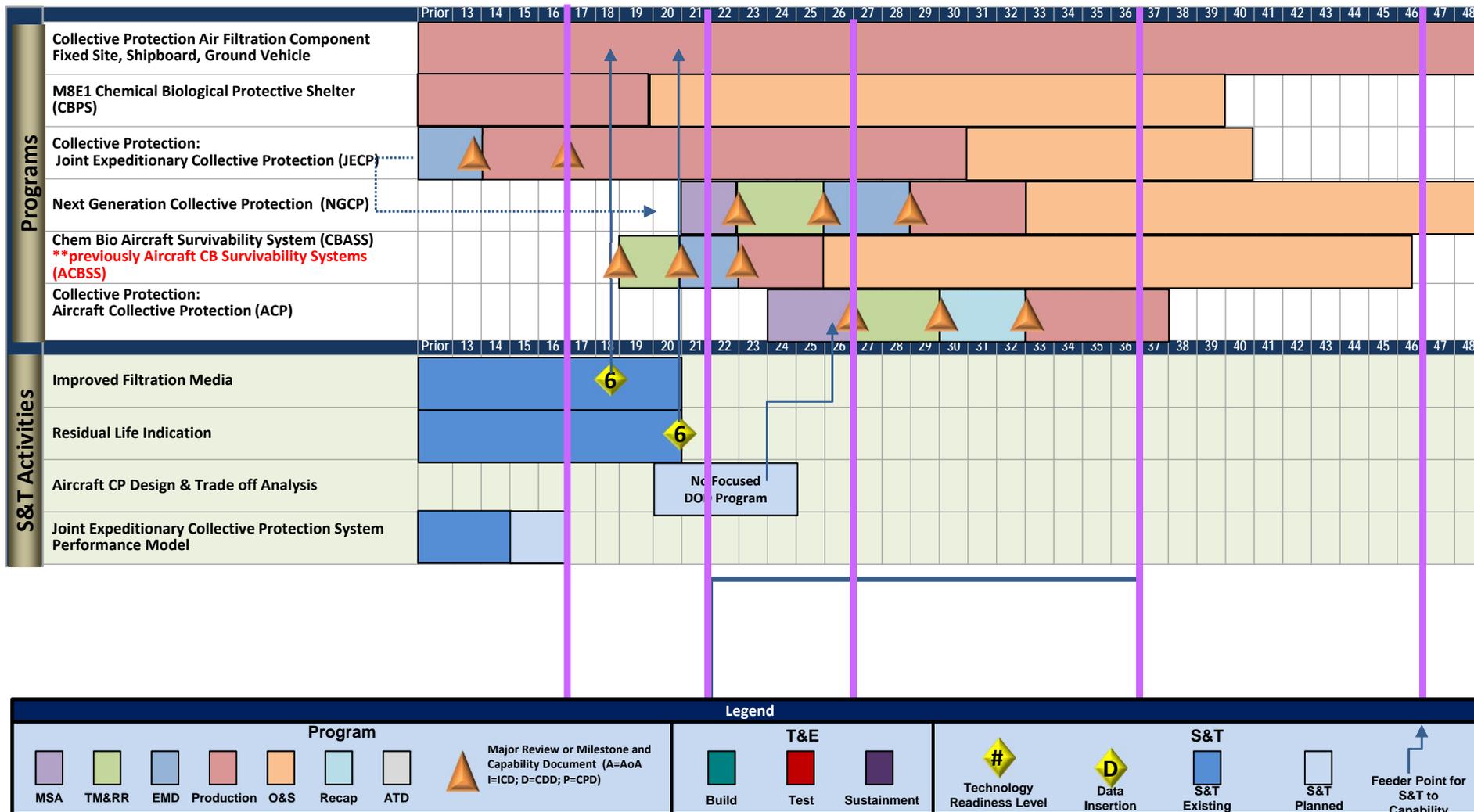
The forecast data is for planning purposes, does not represent a pre-solicitation synopsis, does not constitute an invitation for bid or request for proposal, and is not a commitment by the government to purchase the desired products and services

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

Percutaneous Protection

- DTRA: Dr. Charles Bass, Charles.bass@dtra.mil, 703-767-3371
- JPEO: Mr. Scott Paris, scott.paris@usmc.mil, 703-681-9616

Expeditionary Collective Protection



Current as of 20 April 2015

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Expeditionary Collective Protection: Capability and Capability Gaps

- Current Capability:
 - Provide positive pressure filtered air for specified facilities, shelters, vehicles, and ships
- JRO Modernization Goals:
 - Reduce logistics requirements, enhance operational utility and improve transportability of systems.
- Capability Gaps:
 - Lack of a small, lightweight capability
 - Lack of Aircraft Collective Protection

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Expeditionary Collective Protection: Mid and Far-Term Modernization Goals

- Mid-Term (FY17-20):
 - Field JECP
 - Develop CBASS to provide an isolated space in aircraft for infected or contaminated passengers
 - Develop self-detoxifying materials for shelters
- Far-Term (FY21+):
 - Continue fielding JECP
 - Commence Fielding of the CBASS
 - Commence development of Aircraft Collective Protection
 - Fully integrate collective protection into standard shelter systems
 - Pursue development of interior scavenger filters and improved non-transmitting/reusable barrier materials
 - Develop coatings capable of protecting structures and equipment against contamination

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Expeditionary Collective Protection: S&T Focus Areas

- Which gaps are we addressing?
 - Lack of a small, lightweight capability
- What S&T efforts are planned or on-going?
 - Dynamic Multifunctional Materials for Protection
 - (Includes Embedded Residual Life Indicator)
- Which program (s) does the S&T support
 - JECP
- When is the S&T needed?
 - FY17-FY21
- S&T “push” efforts

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

Expeditionary Collective Protection: Technology Needs

- What capability gaps are we addressing?
 - Lack of a small, lightweight capability
 - Lack of Aircraft Collective Protection
- What Enablers are needed?
 - Novel Media for Air Purification
 - Embedded Residual Life Indicator
- When is the Enabler needed?
 - Novel Media for Air Purification FY18
 - Embedded Residual Life Indicator FY21
- What Innovations are needed?
 - Light weight CB protective materials for single layer shelters
 - Light weight removable Aircraft Collective Protection that can be quickly installed/removed for mission specific applications

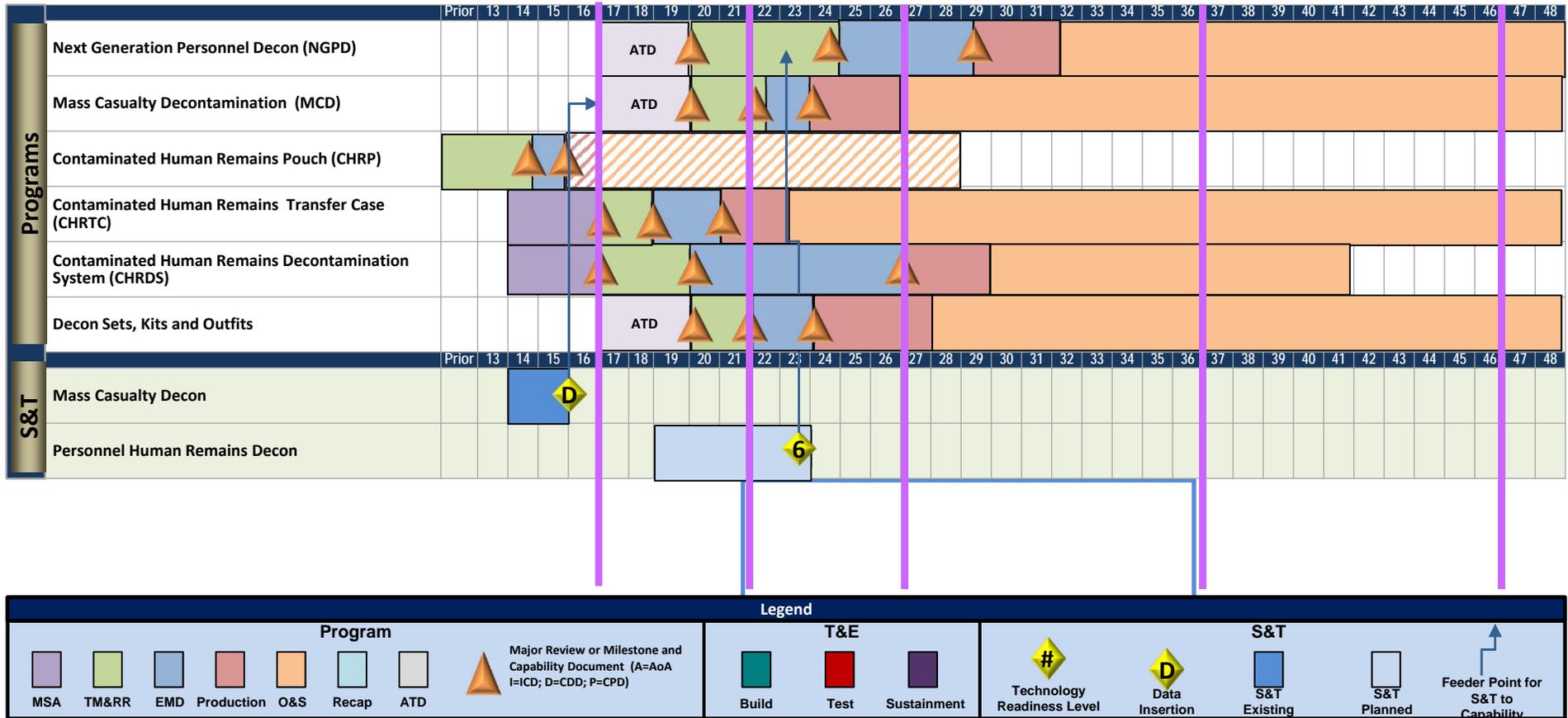
The forecast data is for planning purposes, does not represent a pre-solicitation synopsis, does not constitute an invitation for bid or request for proposal, and is not a commitment by the government to purchase the desired products and services

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

Expeditionary Collective Protection

- DTRA: Dr. Charles Bass, Charles.bass@dtra.mil, 703-767-3371
- JPEO: Mr. Scott Paris, scott.paris@usmc.mil, 703-681-9616

Personnel Contamination Mitigation



Current as of 20 April 2015

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Personnel Contamination Mitigation: Capability and Capability Gaps

- Current Capability:
 - Reactive Skin Decontamination Lotion effective against traditional chemical agents
 - Biological and Radiological particles can be removed with hot soapy water
- Modernization Goals:
 - Improve the individual decontamination products to increase potency and reduce hazards to skin and lungs and increase effectiveness against non-traditional and biological agents.
 - Develop improved capabilities for mass casualty decontamination, and decrease thorough decontamination processing time.
 - Provide CBRN-unique components required to safely recover, handle, decontaminate and transport human remains.
- Capability Gaps:
 - Limited effectiveness against chemical agents
 - Limited casualty decontamination capability
 - Limited capability to perform mortuary affairs activities for contaminated human remains

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Personnel Contamination Mitigation: Mid and Far-Term Modernization Goals

- Mid-Term (FY17-20):
 - Develop products that have improved effectiveness against a broader range of threats
 - Develop products that significantly decrease cost and logistical burdens over currently fielded personnel decontaminants
 - Develop a lightweight, portable kit containing non-toxic products, capable of providing decontamination on the move.
 - Develop products to safely transport contaminated human remains (CHR) from the battlefield to the Mortuary Affairs Contaminated Remains Mitigation Site
 - Develop products to decontaminate CHR to negligible severity levels
 - CHRDS (MS B FY20)
 - Develop products to enable safe transport of CHR for repatriation
 - CHRTC (MS B FY18/19)
- Far-Term (FY21+):
 - Develop products that can be used on patients with open wounds
 - Continue to develop products with the capability to allow repatriation for final disposition in accordance with family instructions

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Personnel Contamination Mitigation: S&T Focus Areas

- Which gaps are we addressing?
 - Limited effectiveness against chemical agents
 - Limited casualty decontamination capability
 - Limited capability to perform mortuary affairs activities for contaminated human remains
- What S&T efforts are planned or on-going?
 - Contaminated Human Remains (includes ATD)
 - Personnel Decontamination (includes ATD)
- Which program (s) does the S&T support
 - CHRS
 - MCD
 - NGPDC
- When is the S&T needed?
 - FY15-FY21
- S&T “push” efforts

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Personnel Contamination Mitigation: Technology Needs

- What capability gaps are we addressing?
 - Limited effectiveness against chemical agents
 - Limited casualty decontamination capability
 - Limited capability to perform mortuary affairs activities for contaminated human remains
- What Enablers are needed?
 - Personnel Decontamination employing $ZR(OH)_4$
 - Provides increased effectiveness against chemical agents
 - Chemical Contaminated Human Remains Liner
 - Increases the ability to perform mortuary affairs activities for contaminated human remains
- When is the Enabler needed?
 - Personnel Decontamination employing $ZR(OH)_4$ FY23
 - Chemical Contaminated Human Remains Liner FY24
- What Innovations are needed?
 - A personnel decontamination solution that can neutralize all known agents with no ill effects even when applied to open wounds

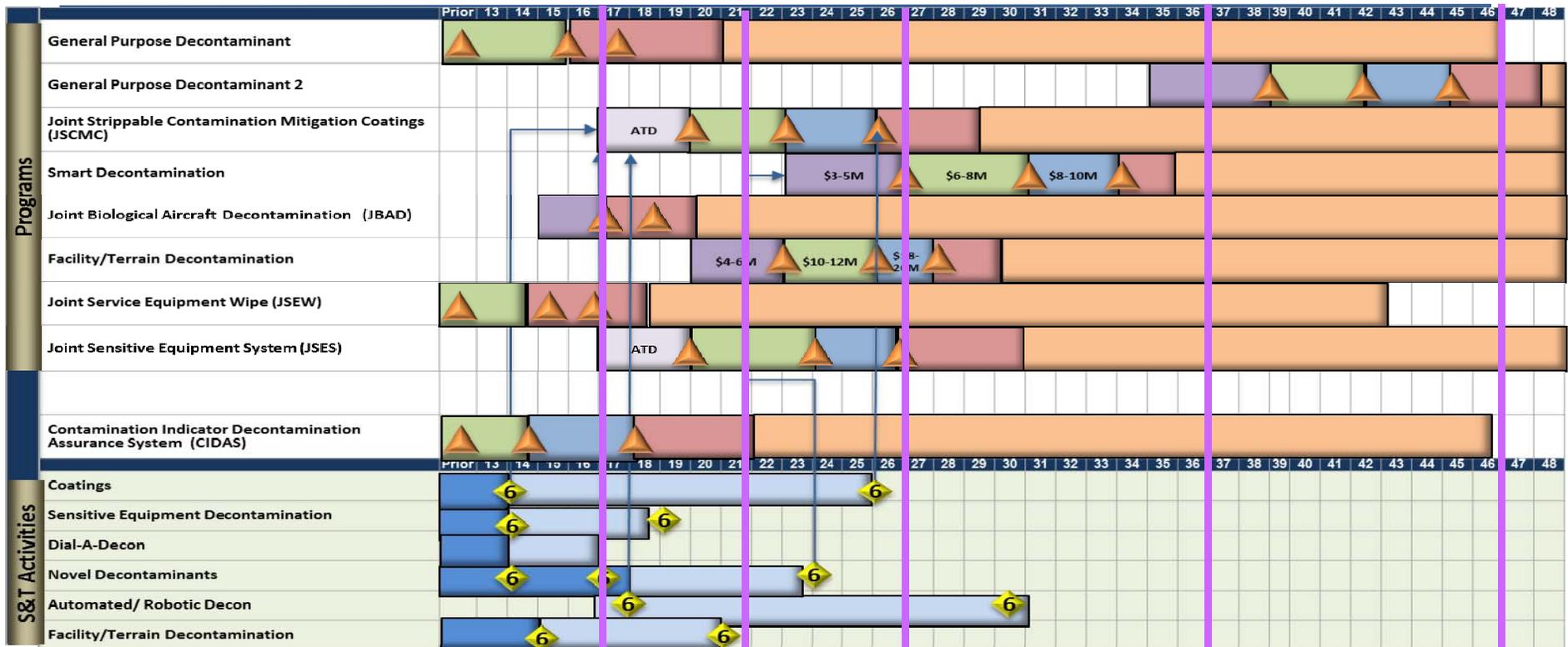
The forecast data is for planning purposes, does not represent a pre-solicitation synopsis, does not constitute an invitation for bid or request for proposal, and is not a commitment by the government to purchase the desired products and services

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

Personnel Contamination Mitigation

- DTRA: Dr. Charles Bass, Charles.bass@dtra.mil, 703-767-3371
- JPEO: Mr. Scott Paris, scott.paris@usmc.mil, 703-681-9616

Materiel Contamination Mitigation



Legend

Program MSA (Purple), TM&RR (Green), EMD (Blue), Production (Red), O&S (Orange), Recap (Light Blue), ATD (Light Grey)							Major Review or Milestone and Capability Document (A=AoA, I=ICD; D=CDD; P=CPD) (Orange Triangle)			T&E Build (Teal), Test (Red), Sustainment (Purple)			Technology Readiness Level (#) (Yellow Diamond)		Data Insertion (D) (Yellow Diamond)		S&T S&T Existing (Blue), S&T Planned (Light Blue)		Feeder Point for S&T to Capability (Arrow)
---	--	--	--	--	--	--	--	--	--	--	--	--	---	--	-------------------------------------	--	---	--	--

Current as of 20 April 2015

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Materiel Contamination Mitigation: Capability and Capability Gaps

- Current Capability:
 - Hot soapy water applied by specified decontamination applicator
 - General Purpose Decontaminate provides decontamination capabilities for tactical vehicles, shipboard surfaces, crew-served weapons and individual weapons.
 - Joint Service Equipment Wipe provides immediate/operational decontamination capabilities for sensitive and non-sensitive equipment.
- Modernization Goals:
 - Improve capability to safely decontaminate sensitive equipment, and to confirm complete decontamination and return-to-use.
 - Increase capability to more effectively decontaminate terrain, facilities and large equipment while minimizing the logistics' footprint
- Capability Gaps:
 - Limited capability to decontaminate personal equipment, weapons, vehicles, ships, facilities, and terrain
 - Limited capability to decontaminate sensitive equipment, such as weapon system optics, electronic equipment, interior spaces, and aircraft
 - Limited ability to decontaminate hazardous waste

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Materiel Contamination Mitigation: Mid-Term Modernization Goals

- Mid-Term (FY17-20):
 - Develop products with the capability to mitigate contamination of building interiors
 - Facility/Terrain Decon (MS A FY22/23)
 - Develop decontamination technologies to negligible severity levels for sensitive equipment
 - JSES (MS A FY20)
 - Develop products to contain contamination runoff after decontamination operations
 - Develop systems capable of decontaminating aircraft and large sensitive combat vehicles
 - JBAD (MS C Increment I FY17)
 - JBAD (MS B Increment II FY17)

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Materiel Contamination Mitigation: Far-Term Modernization Goals

- Far-Term (FY21+):
 - Field a system capable of biological decontamination of aircraft
 - JBAD (MS C Increment I FY17)
 - JBAD (MS B Increment II FY17)
 - Develop products with the capability to mitigate chemical, biological and radiological contamination of interior surfaces
 - Develop candidate coatings with the capability to resist, absorb, or react to mitigate exterior contamination
 - JSCMC (MS A FY20)
 - Develop products that mitigate contamination to clearance levels
 - Develop products to mitigate contamination on terrain such as aerial ports and seaports of debarkation
 - Facility/Terrain Decon (MS A FY22/23)
 - Develop products to process clean and/or recycle effluent contamination runoff
 - Develop products that provide expeditionary bulk agent defeat

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Materiel Contamination Mitigation: S&T Focus Areas

- Which gaps are we addressing?
 - Limited capability to decontaminate personal equipment, weapons, vehicles, ships, facilities, and terrain
 - Limited capability to decontaminate sensitive equipment, such as weapon system optics, electronic equipment, interior spaces, and aircraft
 - Limited ability to decontaminate hazardous waste
- What S&T efforts are planned or on-going?
 - (Sorbent) Formulations for Immediate Decontamination
 - Catalytic-Based Decontamination
 - Wide Area Decontamination of Anthrax Spores
 - Enhanced CB Survivability Coatings
 - Sorbent Formulations for Immediate Decon
 - Small Scale Disablement ATD

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Materiel Contamination Mitigation: S&T Focus Areas

- Which program (s) does the S&T support
 - JSCMC, JSES, JSEW, JGPD, CIDAS, JBADS
- When is the S&T needed?
 - CIDAS – Q4FY16; JGPD – Q4FY15; Others – Pre-MSB
- S&T “push” efforts
 - Wide Area Decontamination

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Materiel Contamination Mitigation: Technology Needs

- What capability gaps are we addressing?
 - Limited capability to decontaminate personal equipment, weapons, vehicles, ships, facilities, and terrain
 - Limited capability to decontaminate sensitive equipment, such as weapon system optics, electronic equipment, interior spaces, and aircraft
 - Limited ability to decontaminate hazardous waste
- What Enablers are needed?
 - Novel Decontaminants
 - Coatings
 - Sensitive Equipment Decon
 - Automatic/Robotic Decon
 - Facility/Terrain Decon

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Materiel Contamination Mitigation: Technology Needs

- When is the Enabler needed?
 - Novel Decontaminates FY23
 - Coatings FY26
 - Sensitive Equipment Decon FY18
 - Facility/Terrain Decon FY21
- What Innovations are needed?

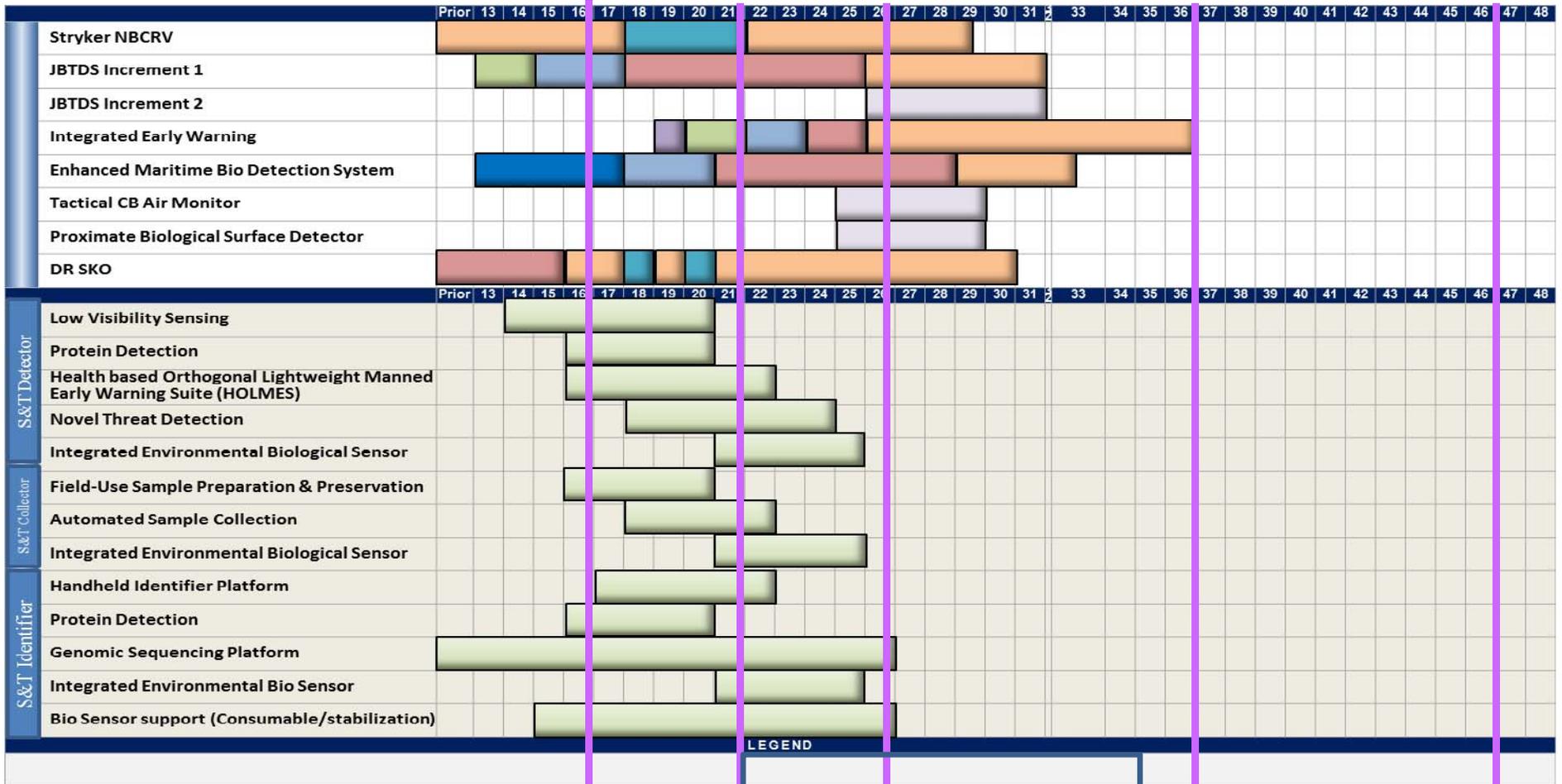
The forecast data is for planning purposes, does not represent a pre-solicitation synopsis, does not constitute an invitation for bid or request for proposal, and is not a commitment by the government to purchase the desired products and services

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

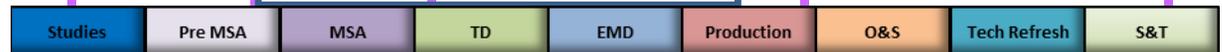
Materiel Contamination Mitigation

- DTRA: Dr. Charles Bass, Charles.bass@dtra.mil, 703-767-3371
- JPEO: Mr. Scott Paris, scott.paris@usmc.mil, 703-681-9616

Biological Detection



Current as of 20 April 2015



DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Biological Detection: Capability and Capability Gaps

- Current Capability:
 - Detect to treat, fielded to specified forces and locations
 - Field detection and collection of samples
 - Laboratory identification / confirmation of samples
- Modernization Goals:
 - Increase the breadth and accuracy of detection and identification capabilities in the field. Develop near-real-time detection capability for biological agents. Improve integration with C4ISR systems.
- Capability Gaps:
 - Lack of detect to warn
 - Limited field identification capability
 - Lack of expeditionary detection
 - Burdensome logistical supportability

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Biological Detection : Mid and Far-Term Modernization Goals

- Mid-Term (FY17-20):
 - Develop detectors that can detect and analyze biological hazards for presumptive identification at levels below operational significance.
 - Improve the response time of biological threat detection.
 - Improve the portability and confidence of biological detectors.
 - Improve the integration of biological detectors. Detector information must be relayed to other information systems to support operations and enable additional analyses.
 - Develop more cost-effective means of detecting and presumptively identifying biological attacks, with operationally suitable false-positive rates.
 - Reduce the O&S costs for biological detection and identification.
- Far-Term (FY21+):
 - Develop an automated, net-centric, single sensor package

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Biological Detection : S&T Focus Areas

- Which gaps are we addressing?
 - Pre-exposure, remote, unmanned biological agent detection (detect to warn)
 - Field identification capability and expeditionary detection
 - Enhanced logistical supportability
 - Environmental sample identification
- What S&T efforts are planned or on-going?
 - Universal sample collection, preparation, and preservation technologies
 - Handheld biological detection kit
 - Next generation pathogen & protein threat identification
 - End-to-end whole genome sequencing platform with integrated bioinformatics
 - Integrated environmental biological sensor platform
 - Low visibility and early warning sensing
 - Automated sample collection
 - Health-based Orthogonal Lightweight Manned Early warning Suite (HOLMES)
 - Fieldable MS technology evaluation for BW detection
 - Device-to-Cloud integration of multisource detection and diagnostics results to inform command decisions

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Biological Detection : S&T Focus Areas

- Which program (s) does the S&T support
 - Enhanced Maritime Biological Agent Detection System
 - Joint Biological Tactical Detection System (JBTDS)
 - Joint Exposure Status Sensor (JESS)
 - CBRN- Sensors Integrated on Robotic Platform (CSIRP)
 - Reconnaissance platforms (DR-SKO & NBCRV)
 - Integrated Early Warning
 - Proximate Biological Surface Detector
 - Tactical Chemical and Biological Air Monitor/Identifier
- When is the S&T needed?
 - Mid and Far Term
- S&T “push” efforts
 - Health-based Orthogonal Lightweight Manned Early warning Suite (HOLMES)
 - End-to-end whole genome sequencing platform with integrated bioinformatics

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Biological Detection : Technology Needs

- What capability gaps are we addressing?
 - Lack of detect to warn
 - Limited field identification capability
 - Lack of expeditionary detection
 - Burdensome logistical supportability
- What capabilities are being targeted?
 - High confidence near real time biological detectors
 - Non-contact / remote threat detection and sampling for reconnaissance
 - Integrated sensors for early warning
 - Enhanced chemical and biological agent detection/collection/identification
 - Adaptable biological agent field detectors and identifiers for emerging threats
 - Enhanced supportability and sustainability
 - Wearable/Lightweight chemical and biological agent identifiers/indicators

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Biological Detection : Technology Needs

- What Enablers are needed?
 - Reduced reliance on consumables / high-stability reagents
 - Sensor and component miniaturization for unmanned/tactical systems
 - Physiological / bio-marker indicators of exposure for pre-symptomatic detection
- What Innovations are needed?
 - Field man portable sequencing technologies
 - Enhanced components to enable reduced size, weight, power, and cost
 - Novel low cost, low logistical burden sensors (detectors/identifier/collectors)
 - Biological contamination indicators to guide sampling

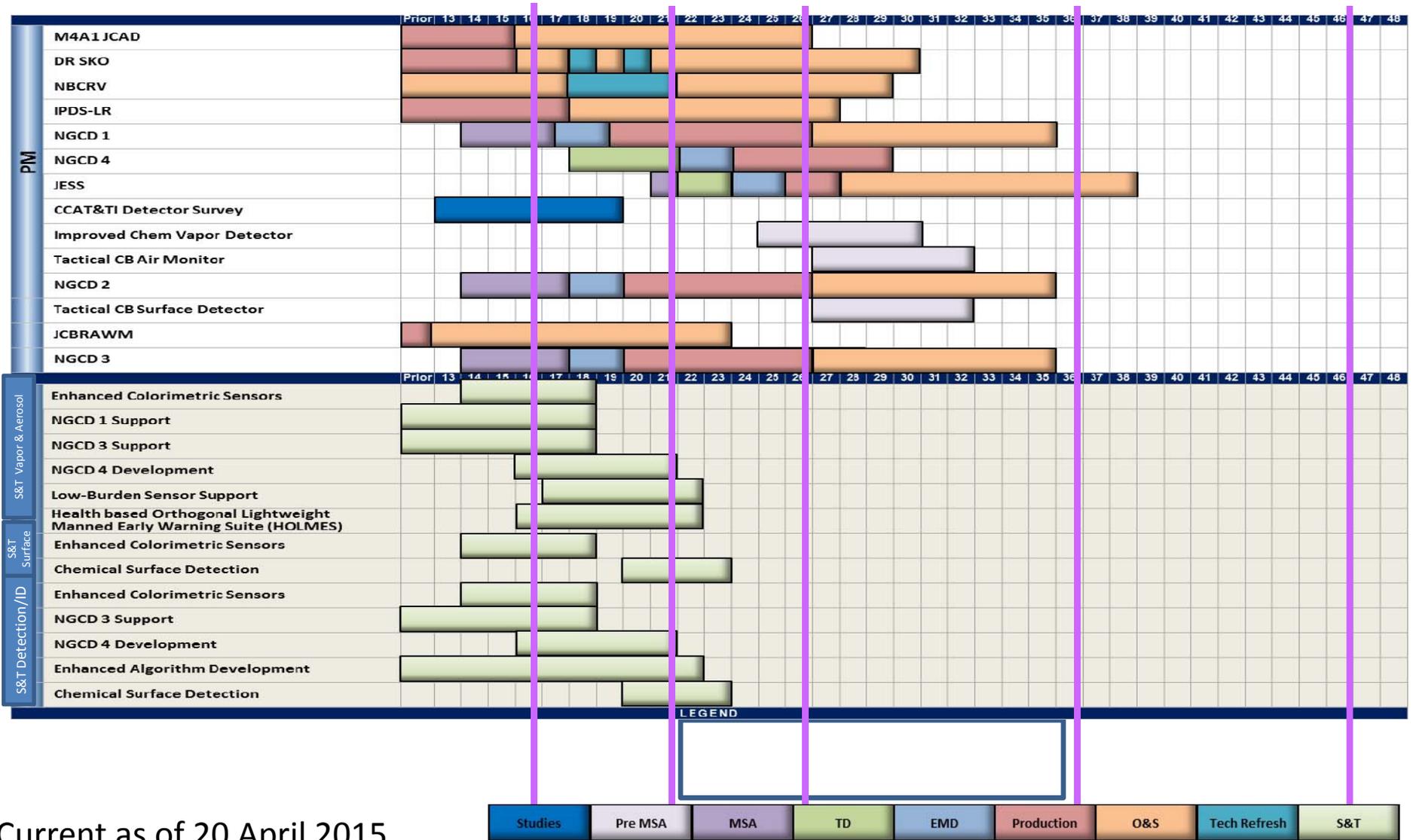
The forecast data is for planning purposes, does not represent a pre-solicitation synopsis, does not constitute an invitation for bid or request for proposal, and is not a commitment by the government to purchase the desired products and services

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

Biological Detection

- DTRA: Dr. Brandi Vann, brandi.c.vann.civ@mail.mil, 703-767-6045
- JPEO: COL Jeffrey Woods, Jeffrey.k.woods4.mil@mail.mil, 410-417-3421

Chemical Detection



Current as of 20 April 2015

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Chemical Detection: Capability and Capability Gaps

- Capability Gaps:
 - Limited detection capability for hazards other than vapor
 - Agents, Toxic Industrial Materials (TIMs)
 - Limited early warning (range)
 - No fielded detection capability for aerosol hazards
 - Limited capability for Non-Traditional Agents (NTAs), Low Volatility Agents
 - Detection and identification of Toxic Industrial Chemicals and Materials (TICs & TIMs)
 - Limited early warning (range)
 - Limited identification of unknown and impure chemical samples

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Chemical Detection : Mid-Term Modernization Goals

- Mid-Term (FY17-20):
 - Improve detection systems' ability to detect and identify NTAs, low-volatility agents (vapor/aerosol), TICs, explosives and traditional chemical warfare agents (liquid, solid, vapor and aerosol) at less than pure, less than bulk, and/or below health effects levels.
 - Improve the means of validating and confirming decontamination processes. Detection systems or other means must be developed to confirm that decontamination processes have eliminated or neutralized contamination on personnel and equipment to levels that permit operations with no protective equipment.
 - Wearable chemical agent and physiology monitors for enhanced sensor density and situational awareness.
 - Improve the integration of chemical detectors. Detector information must be relayed to other information systems to support operations and enable additional analyses.

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Chemical Detection : Far-Term Modernization Goals

- Far-Term (FY21+):
 - Develop an automated, net-centric, single sensor package to detect and identify NTAs, low-volatility agents (vapor/aerosol), TICs, explosives and traditional chemical warfare agents (liquid, solid, vapor and aerosol).
 - Improve monitoring of surface contamination.
 - Improve the portability of chemical detectors. Personal detection devices must be developed that can be worn by response personnel and rapidly inform responders and command health centers to hazard levels.
 - Non-intrusive, non-contact detection and identification of chemical agents in munitions, tanks, or storage vessels.

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Chemical Detection :

S&T Focus Areas

- Which gaps are we addressing?
 - Chemical aerosol detection and identification
 - Detection and identification of Non-Traditional Agents (NTAs), Low Volatility Agents
 - Detection and identification of Toxic Industrial Chemicals and Materials (TICs & TIMs)
 - Early warning (range) , remote unmanned, and multi-modal sensor integration
 - Limited identification of unknown and impure chemical samples
- What S&T efforts are planned or on-going?
 - Next Generation Chemical Detection Increment 3 variant (sample analysis)
 - Advanced remote concepts for liquid and vapor chemical detection
 - Next Generation Chemical Detection Increment 4 variant (on the man)
 - Next Generation Chemical Detection Increment 1 variant (detector alarm for vapor and aerosol)
 - Remote/early warning technology evaluations
 - Enhanced colorimetric sensors
 - Chemical surface detection
 - Low burden sensor support (reduction/miniaturization)

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Chemical Detection : S&T Focus Areas

- Which program (s) does the S&T support
 - Next Generation Chemical Detector (NGCD) variants 1-4
 - Reconnaissance platforms (DRSKO & NBCRV)
 - Integrated Early Warning
 - Joint Exposure Status Sensor (JESS)
 - CBRN- Sensors Integrated on Robotic Platform (CSIRP)
 - Tactical Chemical and Biological Surface Detector/Identifier
 - Improved Chemical Vapor Detector
- When is the S&T needed?
 - Mid and Far Term
- S&T “push” efforts
 - Health-based Orthogonal Lightweight Manned Early warning Suite (HOLMES)

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Chemical Detection : Technology Needs

- What capability gaps are we addressing?
 - Limited detection capability for hazards other than vapor
 - Lack of capability for Non Traditional Agents (NTAs), Low Volatility
 - Agents, Toxic Industrial Materials (TIMs)
 - Limited early warning (range)
- What capabilities are being targeted?
 - Non-contact / remote threat detection and sampling for reconnaissance
 - Integrated sensors for early warning
 - Non-contact chemical threat detection
 - Enhanced chemical and biological agent sampling
 - Unknown hazard identification
 - All-state detection (liquid, vapor, solid, aerosol)
 - Low-cost, high-density sensing
 - Wearable chemical and biological agent detectors and physiology monitors

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Chemical Detection : Technology Needs

- What Enablers are needed?
 - Sensor and component miniaturization for unmanned systems
 - Low-cost, high-density sensing
 - Chemical and biological agent identifier (single unit)
 - Improved optical sensors
 - Enhanced chemistries for surface functionalization to support chemical detection and identification
 - Data fusion and decision support tools integrated with situational awareness tools
 - Ad-hoc sensor integration
- What Innovations are needed?
 - Novel sensor technologies or analysis tools
 - Component miniaturization and specialization / optimization

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

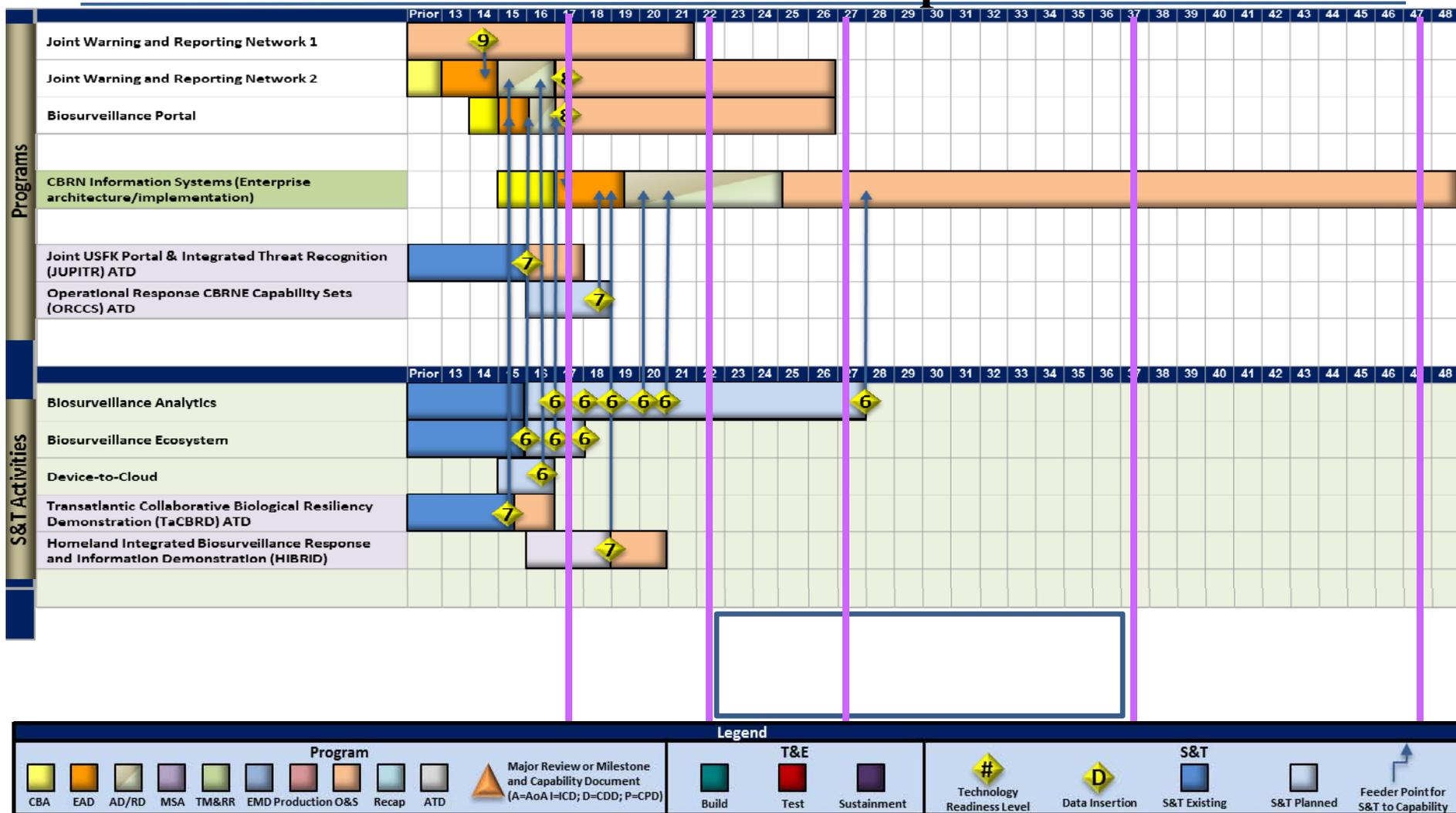
DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

Chemical Detection

- DTRA: Dr. Brandi Vann, brandi.c.vann.civ@mail.mil, 703-767-6045
- JPEO: COL Jeffrey Woods, Jeffrey.k.woods4.mil@mail.mil, 410-417-3421

UNCLASSIFIED

Warning and Reporting: Modified Roadmap



Current as of 20 April 2015

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Warning and Reporting : Capability and Capability Gaps

- Current Capability:
 - Reliant on man-in-the-loop process
- Modernization Goals:
 - Integrate sensor outputs directly into the Joint Warning and Reporting Network (JWARN) software. Provide automatic or manual distribution of warning reports and messages via designated C2 systems, to include military and civilian information operating on a wide range of frequencies and security levels. Develop means for connecting classified and unclassified networks for the timely exchange of CBRN information.
- Capability Gaps:
 - Lack of automated means to disseminate timely sensor warnings
 - Lack of networked sensor monitoring capability
 - Lack of near real time sharing/integration of CBRN-related surveillance information between military and civilian systems

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

Warning and Reporting : Mid-Term Modernization Goals

- Mid-Term (FY17-20):
 - Consistent with the CBDP sensor modernization strategy, network CBRN sensors to provide capability to link sensor outputs directly into JWARN software
 - From sensor inputs, automatically generate and disseminate warning reports and warning messages to user-designated organizations and agencies
 - Provide means to integrate sensors into designated local sensor networks to monitor status and activity
 - Ensure continued relevance of JWARN software by ensuring it remains interoperable with evolving versions of designated host C2 systems
 - With approval of specific JWARN Requirements Definition Packages (RDPs) and associated Capability Drops (CDs), begin fielding of identified/prioritized JWARN capabilities
 - Provide route planning tool that avoids contaminated areas and provides estimated time of arrival for alternative routes from origin to destination
 - Migrate JWARN capability to implement a full net-centric enterprise services capability
 - Archive JWARN information collected on CBRN incidents, including location, date, hazard concentration, units affected, etc. and forward to user-designated portal for post-incident forensics

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Warning and Reporting : Far-Term Modernization Goals

- Far-Term (FY21+):
 - Continue to improve network connectivity by supporting CBRN-related data flow between CBRN-related and other DOD C4ISR systems, such as the Medical Situational Awareness in Theater program, to enable sharing of information between CBRN and medical communities of interest
 - Continue to improve interagency network warning and reporting capability connectivity by linking military and civilian information systems
 - Ensure continued relevance of JWARN application by ensuring it remains interoperable with evolving versions of designated host C2 systems
 - Incorporate appropriate cross-domain solution to exchange CBRN information between classified domains
 - IAW planned JWARN RDPs and CDs, continue fielding of identified/prioritized JWARN capabilities

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Warning and Reporting : S&T Focus Areas

- Which gaps are we addressing?
 - Lack of automated means to disseminate timely sensor warnings
 - Lack of networked sensor monitoring capability
 - Lack of near real time sharing/integration of CBRN-related surveillance information between military and civilian systems
- What S&T efforts are planned or on-going?
 - Biosurveillance Analytics
 - Disease Forecasting Models
 - Zoonotic Disease Prediction Applications
 - Epidemiological Decision Support Tools
 - Biosurveillance Ecosystem
 - JWARN Technology Refresh & Maturation
 - Includes Device to Cloud, sensor placement, adaptive route planning, and shelter-in-place versus evacuation decision aid technology refresh/ maturation

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Warning and Reporting : S&T Focus Areas

- Which program(s) does the S&T support?
 - Joint Warning and Reporting Network
 - Biosurveillance Portal
 - CBRN Information Systems (Enterprise architecture/implementation)
- When is the S&T needed?
 - Technology insertion may occur during the Information Technology (IT) Box engineering analysis and design, agile development/rapid delivery, and operations and support acquisition phases, as defined in the requirements definition packages and capability drops.
- S&T “push” efforts
 - JPEO-CBD: Operational Response CBRNE Capability Sets ATD
 - DHS, DTRA: Homeland Integrated Biosurveillance Response and Information Demonstration (HIBRID)

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Warning and Reporting : Technology Needs

- What capability gaps are we addressing?
 - Lack of automated means to disseminate timely sensor warnings
 - Lack of networked sensor monitoring capability
 - Lack of near real time sharing/integration of CBRN-related surveillance information between military and civilian systems
- What Enablers are needed?
 - Sensor connectivity with Common CBRN Sensor Interface (CCSI) integrations
 - Increased radio performance (bandwidth) to allow for sensor connectivity
 - Android and iOS implementations of warning and reporting capabilities

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Warning and Reporting : Technology Needs

- When is the Enabler needed?
 - MS B/RDP-1 or at subsequent IT Box acquisition RDP approvals
- What Innovations are needed?
 - Affordable, small, multidirectional software/XML-programmable cross domain solutions
 - Better, cheaper, smaller, and more prolific networked sensors
 - Integration of wearable sensor technology [e.g., Joint Health Risk Management (JHRM) or even commercial variants in the near-term Apple Watch, etc.]

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

JPM Information Systems

Points of Contact

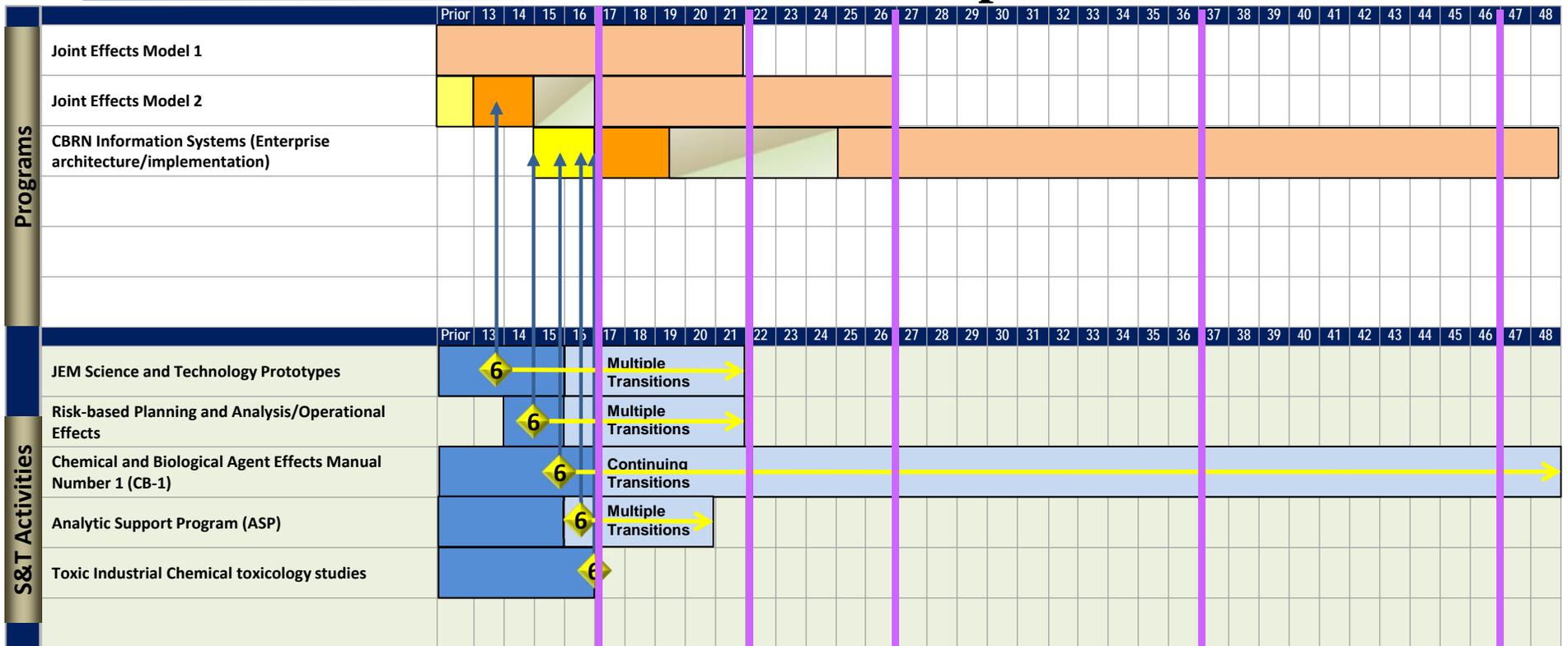
- DTRA: Dr. John Hannan, john.Hannan@dtra.mil, 703-767-3286
- JPEO: Scott White, Scott.a.white.civ@mail.mil, 619-221-7272

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Decision Analysis and Management: Modified Roadmap



Current as of 20 April 2015

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

Decision Analysis and Management: Capability and Capability Gaps

- Current Capability:
 - Perform doctrinal vulnerability assessments, assess operational effects, and support pre-CBRN incident planning based on transport and dispersion predictions
- Modernization Goals:
 - Continue to refine hazard prediction information via the Joint Effects Model (JEM) and integrate with DOD information technology systems that produce, consume, or exchange CBRN information. These systems must also include military and civilian information systems operating on a wide range of frequencies and security levels. Develop an analytical version of JEM to support joint force modernization assessments.
- Capability Gaps:
 - Ability to accurately model all CBRN hazard categories
 - Limited decision support to model impacts of hazards on operations
 - Integrate modeling products with evolving user C2 host systems
 - Limited interoperability between military and civilian health surveillance systems

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Decision Analysis and Management: Mid-Term Modernization Goals

- Mid-Term (FY17-20):
 - Refine predicted contamination areas to reflect input of updated meteorological or oceanographic data or manual input of actual agent concentration levels
 - With approval of specific JEM Requirements Definition Packages (RDPs) and Capability Drops (CDs), begin fielding of identified and prioritized JEM capabilities
 - JEM shall implement an embedded application to provide continued interoperability with evolving National Geospatial-Intelligence Agency mapping standards to ensure JEM utilizes current operational mapping products
 - Model initial effects from user-defined radii of blast, thermal, and gamma radiation exposure
 - Using inputs from validated modeling sources, JEM shall predict hazards and effects for building interiors and waterborne contamination
 - Ensure continued relevance of JEM by ensuring it remains interoperable with evolving versions of designated host C2 systems
 - Using accurate population location inputs, model civilian and military casualties within specified large geographic areas

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Decision Analysis and Management: Far-Term Modernization Goals

- Far-Term (FY21+):
 - Provide a separate analytical version of JEM to support the DOD analytic community in providing recommendation for CBDP force modernization and enhancement, doctrinal support, and selected operational support
 - Predict hazards and effects for infectious and contagious diseases
 - In accordance with planned JEM RDPs and CDs, continue fielding of identified and prioritized JEM capabilities
 - Refine predicted hazard areas to reflect actual agent concentration levels provided by Joint Warning and Reporting Network, once sensor connectivity capability is achieved
 - Provide three-dimensional area hazard prediction modeling for aircrew that depicts both hazardous and safe altitudes above known surface contaminated areas

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Decision Analysis and Management: S&T Focus Areas

- Which gaps are we addressing?
 - Ability to accurately model all CBRN hazard categories
 - Limited decision support to model impacts of hazards on operations
 - Integrate modeling products with evolving user C2 host systems
 - Limited interoperability between military and civilian health surveillance systems
- What S&T efforts are planned or on-going?
 - JEM Science and Technology Prototypes which include improving capabilities in the areas of open-air, urban, interior and waterborne transport and dispersion , source term release event modeling for traditional and non-traditional agents, missile intercept release modeling, and health and human effects modeling.
 - Risk-based Planning and Analysis/Ops Effects for Naval, Air Force and Army Needs
 - Further work establishing the Chemical and Biological Agent Effects Manual Number 1 (CB-1) as the definitive CB information resource.
 - The Analytic Support Program (ASP), providing short and long term study capability leveraging experts in several areas.
 - Toxic Industrial Chemical toxicology studies

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Decision Analysis and Management: S&T Focus Areas

- Which program(s) does the S&T support?
 - Joint Effects Model
 - CBRN Information Systems (Enterprise architecture/implementation)
- When is the S&T needed?
 - Technology insertion may occur during the IT Box engineering analysis and design, agile development/rapid delivery, and operations and support acquisition phases, as defined in the requirements definition packages and capability drops.
- S&T “push” efforts
 - DTRA:
 - Risk-based Planning and Analysis/Operational Effects for Naval, Air Force, and Army Needs.
 - Further work establishing the Chemical and Biological Agent Effects Manual Number 1 (CB-1) as the definitive CB information resource.
 - The Analytic Support Program (ASP), providing short and long term study capability leveraging experts in several areas.
 - Toxic Industrial Chemical toxicology studies

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Decision Analysis and Management: Technology Needs

- What capability gaps are we addressing?
 - Ability to accurately model all CBRN hazard categories
 - Limited decision support to model impacts of hazards on operations
 - Integrate modeling products with evolving user C2 host systems
 - Limited interoperability between military and civilian health surveillance systems
- What Enablers are needed?
 - More field trials of releases to better validate models
 - Android and iOS implementations of decision analysis and management capabilities
- When is the Enabler needed?
 - MS B/RDP-1 or at subsequent IT Box acquisition RDP approvals
- What Innovations are needed?
 - Affordable, small, multidirectional software/XML-programmable cross domain solutions

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

JPM Information Systems

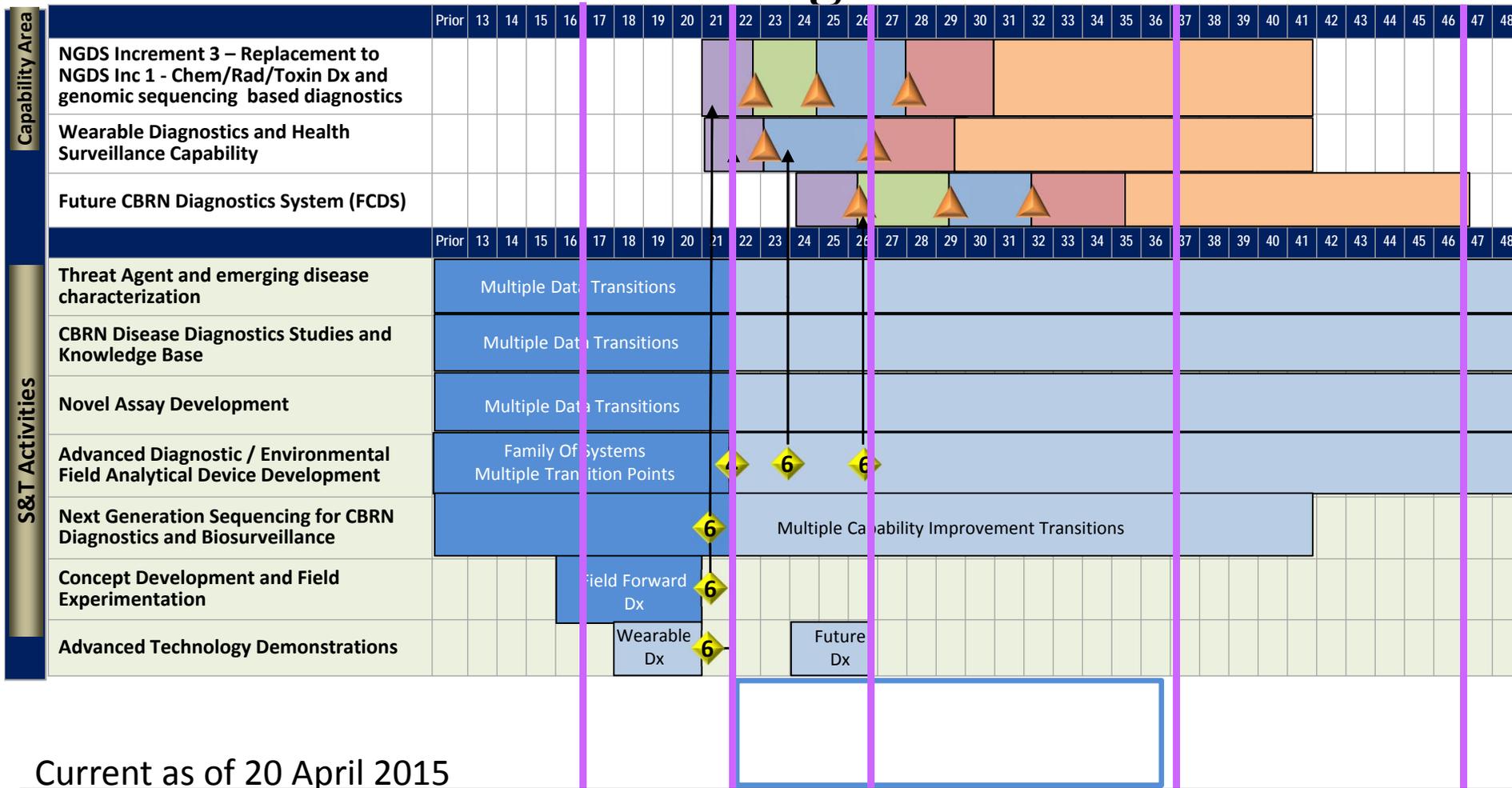
Points of Contact

- DTRA: Jerry Glasow, jerry.Glasow@dtra.mil, 703-767-3458
- JPEO: Scott White, Scott.a.white.civ@mail.mil, 619-221-7272

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

Medical Diagnostics



Current as of 20 April 2015



DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Medical Diagnostics: Capability and Capability Gaps

- Current Capability:
 - Clinical specimen analysis performed by deployable medical units equipped with laboratory facilities for a limited number of biological warfare agents (BWA) and endemic infectious diseases
- Modernization Goals:
 - Expand the breadth of CBRN threat diagnostic capabilities
 - Fully integrate CBRN threat diagnostics into routine health diagnostics
 - Support improved individual treatment and Force Health Protection decision making across all echelons of care
 - Improve the logistical supportability and affordability of diagnostic capabilities
- Capability Gaps:
 - Diagnostic approaches for toxins, chemical, radiological exposures suitable for field use
 - Shelf life and temperature stability of assay consumables
 - Low complexity, automated diagnostic tools
 - Pre-symptomatic diagnostic capabilities

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Medical Diagnostics: Mid-Term Modernization Goals

- Mid-Term (FY17-20):
 - Complete fielding of Next Generation Diagnostics Systems (NGDS) Increment 1 Nucleic Acid Amplification Test (NAAT) to expand BWA diagnostics, provide initial integration with endemic disease diagnostics and lower training and operator man-power burden through integrated automated sample preparation
 - Complete fielding of NGDS Increment 2 to expand the breadth of BWA diagnostics using low complexity immunoassay diagnostic tests for select BWA Pathogens
 - Operationally suitable at lower echelons of care
 - May serve as a platform for future integration of host-response biomarker based approaches
 - Initial capabilities for virus vs. bacteria screening and antimicrobial resistance marker detection to inform Force Health Protection decision making

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Medical Diagnostics: Far-Term Modernization Goals

- Far-Term (FY21+):
 - Greatly expand molecular pathogen diagnostics through the implementation of genomic sequencing approaches in field settings
 - Expand the breath of CBRN exposure diagnostics through host-response biomarker based approaches for toxin, chemical and radiological diagnostics
 - Integrate “inward looking” clinical monitoring methods for CBRN and endemic disease threats with routine Warfighter Physiological Status Monitor (WPSM) systems to provide pre-symptomatic indication of exposure
 - Broad capabilities for informing treatability / resistance
 - Ability to quickly implement diagnostic tests for emerging diseases / novel threats

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Medical Diagnostics: S&T Focus Areas

- What S&T efforts are planned or on-going? (Mid and Long Term)
 - Expanding the Breadth of CBRN diagnostics
 - Target identification from agent and host for diagnostic assay development and verification
 - Threat characterization and new assay design
 - Host response biomarker surveys, discovery and verification
 - Differentiation of Viral vs. Bacterial infections for Point of Care applications
 - NTA Diagnostic technology assessment
 - Sample-to-answer genomic sequencing
 - Improving logistics supportability and affordability
 - High sensitivity, low complexity, multiplexed diagnostic devices
 - Universal clinical sample collection, preparation, and preservation
 - Pre-symptomatic diagnostics
 - Health-based Orthogonal Lightweight Manned Early warning Suite (HOLMES)

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Medical Diagnostics: S&T Focus Areas

- What S&T efforts are planned or on-going? (Mid Term)
 - Far Forward Diagnostics Challenge
 - Test bed for Commercial Off The Shelf (COTS) and developmental devices and assays for endemic diseases
 - OCONUS Clinical and device to cloud demonstrations, integrated with Biosurveillance Ecosystem / Portal for data visualization
 - HOLMES Advanced Technology Demonstration
 - Integration of the Soldier systems, physiological and *clinical* sensor suites, logistical backbones (power, communications, etc.), and data fusion algorithms for Warfighter “wellness” monitoring
 - Develop Concept of Operations (CONOPS) for use of new Warfighter capabilities
- S&T “Push” Efforts Mid-Term (FY17-20)
 - Genomic and clinical informatics platform
 - Rapid Automated Diagnostics for Antimicrobial Resistance (RADAR)
 - Next-generation sequencing-based molecular diagnostics

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Medical Diagnostics: S&T Technology Needs

- S&T Enablers Needed (Long Term FY21+)
 - Standards and regulations
 - Lack of clinical diagnostic standards for biomarker verification and validation
 - Lack of standards, technologies, and comparative data needed to make genome sequencing useful in clinical care
 - High stability reagent and reduced reliance on consumables
 - Eliminate reliance on cold chain
 - Development of thermally stable reagents/antibodies
- Innovations Needed
 - Infectious disease/CBR curated Biobank
 - Standardized metadata and genomic database

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Medical Diagnostics: Technology Needs

- Genomic sequencing for infectious disease diagnostics
 - 90 minutes or less sample-to-answer time to result
 - Total capability weight less than 148 lbs for 60 day mission
 - Pedigreed FDA approved database for infectious disease diagnostics
 - Stand alone operation in austere environments (no network)
- Lightweight, low complexity, highly multiplexed devices
 - Handheld up to ~20 lbs.
 - Multiplexed to allow syndromic approaches
 - Clinical Laboratory Improvement Amendments (CLIA) – Waived diagnostic devices
 - Operable over a wide range of ambient temperature and humidity with long shelf life assays (2+ years)
 - Open architecture highly desired
- Validated host response biomarkers / panels for infectious disease and antimicrobial resistance

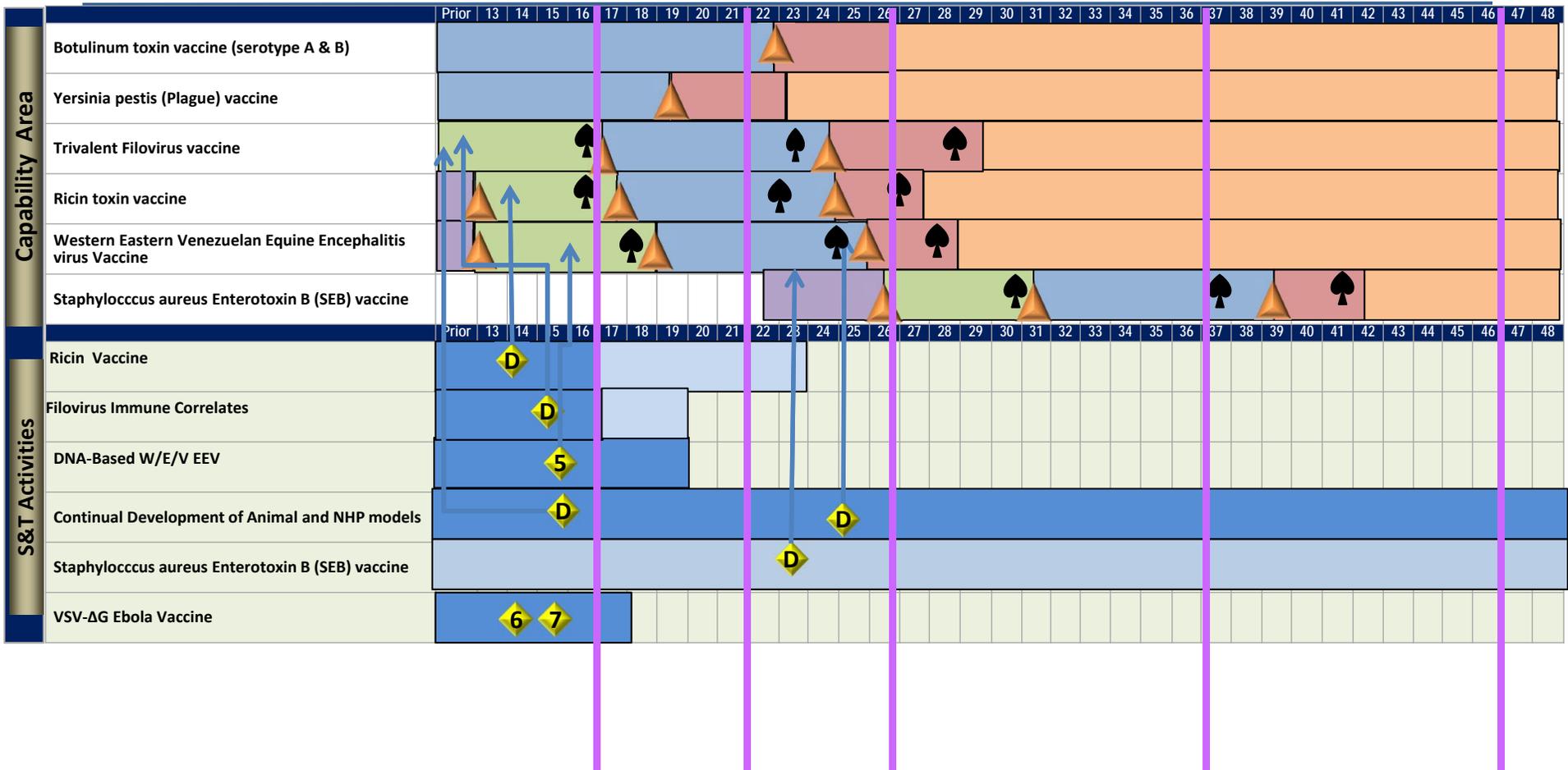
The forecast data is for planning purposes, does not represent a pre-solicitation synopsis, does not constitute an invitation for bid or request for proposal, and is not a commitment by the government to purchase the desired products and services

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

Medical Diagnostics

- DTRA: Dr. Brandi Vann, brandi.c.vann.civ@mail.mil, 703-767-6045
- DTRA: Dr. Erin Reichert, erin.reichert@dtra.mil,
- DTRA: Dr. Don Cronce, Donald.cronce@dtra.mil, 703-767-0982
- JPEO: COL Russell Coleman, Russell.e.coleman.mil@mail.mil, 301-619-7400

Biological Prophylaxis (1 of 2)



Legend

								Major Review or Milestone and Capability Document (A=AoA I=ICD; D=CDD; P=CPD)	T&E						
MSA	TM&RR	EMD	Production	O&S	Recap	ATD				Medical Readiness Level	Data Insertion	S&T Existing	S&T Planned	Potential ADMc	Feeder Point for S&T to Capability

Current as of 20 April 2015

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Biological Prophylaxis: Capability and Capability Gaps

- Current Capability:
 - FDA-licensed vaccines protect against a limited number of biological agents
 - Vaccines effective against single agents
- Modernization Goals:
 - Develop and field MCMs against Biological Warfare Agents, including toxins, as well as emerging and engineered pathogens. Focus on MCMs that protect against a broad spectrum of threats. Reduce the logistics tail with stability improvements, reduced dosing regimens, and longer duration of protection. Target prophylaxes that support rapid modification to protect against naturally mutating and genetically engineered biological threats.
- Capability Gaps:
 - Lack of broad-spectrum vaccines
 - Lengthy onset to protection
 - Adjuvants to enhance immunogenicity

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Biological Prophylaxis: Mid-Term Modernization Goals

- Mid-Term (FY17-20):
 - Obtain FDA licensed vaccines capable of protecting against pneumonic plague resulting from inhaled *Yersinia pestis*
 - Obtain FDA licensed vaccines capable of protecting against pneumonic manifestation resulting from inhaled botulinum toxin
 - Develop a prophylaxis against *Francisella tularensis*
 - Develop a prophylaxis against equine encephalitis viruses
 - Extend shelf life by providing supportive studies and acceptance into FDA/SLEP program, expand operational use temperature ranges, and provide visual indicators of efficacy and/or product compromise

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Biological Prophylaxis: Far-Term Modernization Goals

- Far-Term (FY21+):
 - Conduct preclinical safety and efficacy testing of new generation protectants including specific countermeasures (vaccines, immunoglobulins) and non-specific countermeasures that effectively activate the immune system (immune modulators)
 - Develop a vaccine capable of protecting against inhaled botulinum toxin
 - Develop prophylaxes to address the full range of biological hazards including *Staphylococcus enterotoxin B*, *Burkholderia*, and ricin toxin
 - Develop monoclonal antibodies to provide prophylaxis against weaponizable infectious agents and toxins

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Biological Prophylaxis: S&T Focus Areas

- Which gaps are we addressing?
 - Lack of broad-spectrum vaccines
 - Lengthy onset to protection
 - Lack of toxin vaccines
 - Logistical footprint
 - Lack of mature animal models
- What S&T efforts are planned or on-going?
 - Antibody-based prophylaxis (passive immunity will obviate “lengthy onset to protection”)
 - Prophylaxis against engineered anthrax, Q-fever, SEB toxin, Melioidosis and Glanders
 - Improved adjuvants and vaccine platforms to enable single dose and rapid onset of protection
- Which program (s) does the S&T support
 - Filovirus vaccine: Immune correlates
 - Western, Eastern and Venezuelan Equine Encephalitis Virus vaccine: Animal model
 - Tularemia vaccine: New start in FY 21
 - Multi-Botulinum toxin vaccine: New start in FY21
 - Ricin vaccine: Phase 1 clinical evaluations of RVEc, a candidate ricin vaccine

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Biological Prophylaxis: S&T Focus Areas

- When is the S&T needed?
 - During Technology Maturation and Risk Reduction, and Technology Transition

- S&T “push” efforts
 - Next Generation Anthrax Vaccine
 - Monovalent and trivalent VSV- DG Ebola Vaccine
 - Q-fever Vaccine
 - Melioidosis and Glanders Vaccine
 - SEB Vaccine
 - DNA vaccine technology
 - Prophylaxis strategies for incapacitants

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Biological Prophylaxis: Technology Needs

- What capability gaps are we addressing?
 - Lack of broad-spectrum vaccines
 - Lengthy onset to protection
 - Lack of toxin vaccines
- What Enablers are needed?
 - Tularemia and Multi-Botulinum Vaccines
 - Animal model development
 - Natural history studies
 - Strain characterization and selection
 - Adjuvant development to support enhanced immunogenicity
- When is the Enabler needed?
 - MS A in FY21
- What Innovations are needed?
 - TBD

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

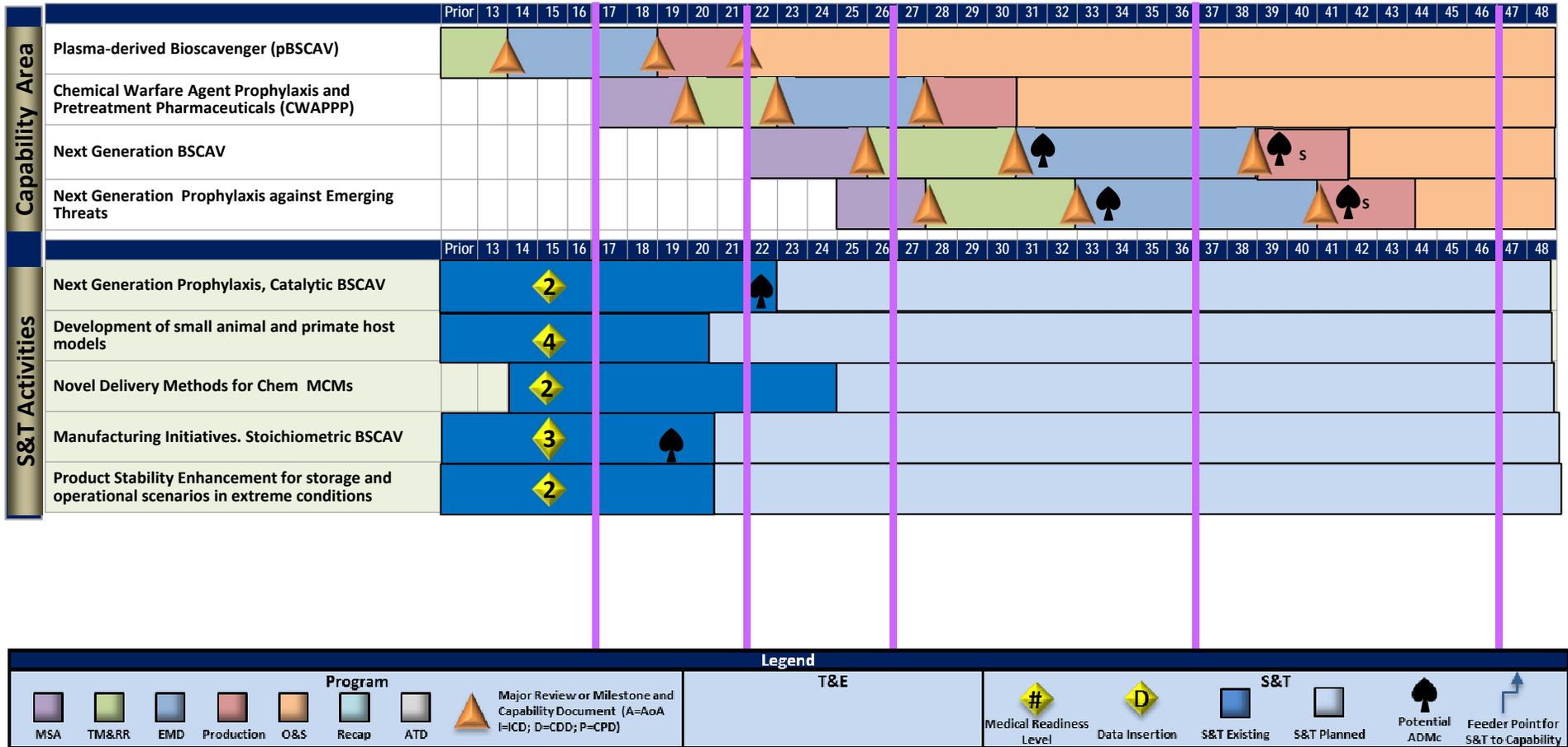
Biological Prophylaxis

- DTRA: Dr. Dave Hone, david.m.hone2.civ@mail.mil, (703) 767-3402
- JPM Point of Contact: LTC Victor Suarez, victor.a.suarez.mil@mail.mil, (301) 619- 7083

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

Chemical Prophylaxis



Current as of 20 April 2015

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Chemical Prophylaxis: Capability and Capability Gaps

- Current Capability:
 - FDA-licensed pre-treatment (pyridostigmine bromide (PB) tablets) against a traditional nerve agent. Not a prophylactic, PB is a pretreatment that increases the effectiveness of current nerve agent treatments, if needed to treat a nerve agent exposure.
- Modernization Goals:
 - Develop and field medical countermeasures against chemical hazards including CWA, toxic industrial chemicals, and non-traditional threats. Expand label indications for fielded pre-treatment products against a broader spectrum of threats. Reduce the logistics tail with support delivery systems, reduced dosing regimens, affordable manufacturing that reduce sustainment costs, and longer duration of protection.
- Capability Gaps:
 - Limited prophylaxes for chemical warfare agents
 - Limited pre-treatment applications
 - Invasive delivery methods

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Chemical Prophylaxis: Mid and Far-Term Modernization Goals

- Mid-Term (FY17-20):
 - Develop viable prophylaxes candidates that address the full range of nerve agents
 - Improve catalytic Bioscavenger enzyme efficiency to operationally relevant levels, optimization/down selection of catalytic Bioscavenger for G and V type OP nerve agents, transgenic plant manufacturing process for Bioscavenger, formulation, storage and alternative delivery of protein based Bioscavengers
 - Extend shelf life by providing supportive studies and acceptance into FDA Shelf Life Extension Program, expand operational uses, route of administration and dose, and provide visual indicators of efficacy and/or product compromise
- Far-Term (FY21+):
 - Develop viable candidates for full range of blood agents
 - Develop viable candidates for full range of choking agents
 - Develop viable candidates for full range of blister agents

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Chemical Prophylaxis: S&T Focus Areas

- Which gaps are we addressing?
 - Prophylaxes for chemical warfare agents (nerve/blister/blood/choking)
 - Limited pre-treatment applications
 - Invasive delivery methods
- What S&T efforts are planned or on-going?
 - Improving catalytic Bioscavenger enzyme efficiency to operationally relevant levels
 - Optimization/down selection of Catalytic Bioscavenger for G and V type OP nerve agents
 - Transgenic plant manufacturing process for Bioscavenger
 - Formulation, storage and alternative delivery of protein based Bioscavenger
- Which program (s) does the S&T support
 - S&T is supporting the development of candidates for Catalytic Bioscavenger
- When is the S&T needed?
 - The BSCAV Program can transition viable candidate(s) for Catalytic Bioscavenger once suitably mature
- S&T “push” efforts
 - Proof of concept studies for utilizing prophylactics in post-exposure CWAPPP
 - Proof of concept studies gene therapy

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Chemical Prophylaxis: Technology Needs

- What capability gaps are we addressing?
 - Prophylaxes for chemical warfare agents (nerve/blister/blood/choking)
 - Limited pre-treatment applications
 - Invasive delivery methods
- What Enablers are needed?
 - Animal Models: Predictive of human exposure and safety to support FDA Animal Rule Requirements
 - Emerging Threats: Predictive toxicology models to support MCM development.
 - ADMET: Early developmental test and evaluation to improve MCM discovery and development. Effective capability to evaluate the drug properties of Absorption, Distribution, Metabolism, Excretion and Toxicity.

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Chemical Prophylaxis: Technology Needs

- When is the Enabler needed?
 - MS B
- What Innovations are needed?
 - ADMET Center of Excellence – USAMRICD
 - DoD Laboratory partners (USAMRICD, ECBC) for OPNA stereoisomer isolation and *in vivo* testing
 - Private sector manufacturing: plant-based recombinant proteins

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

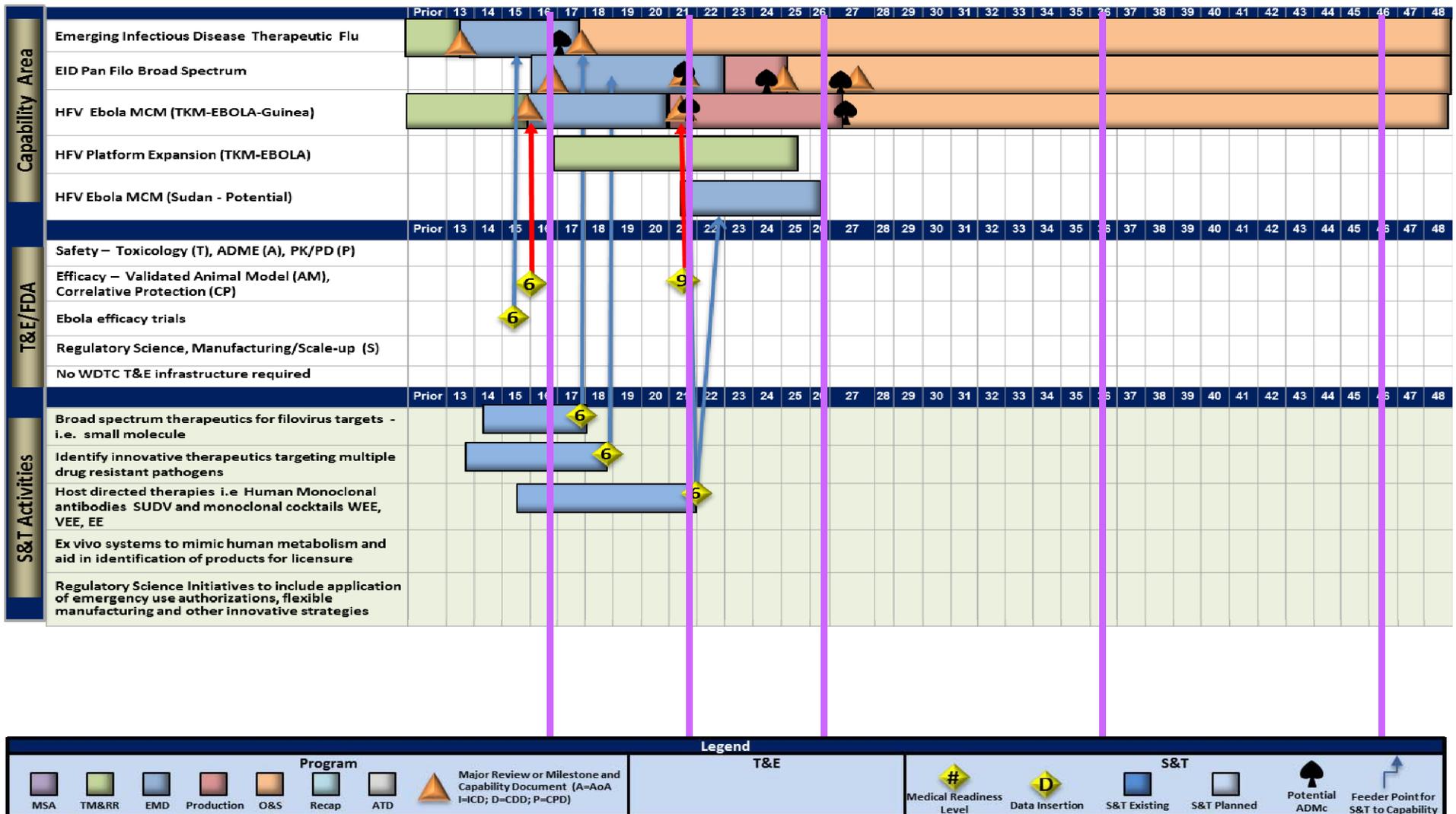
Chemical Prophylaxis

- DTRA: Dr. Dave Hone, david.m.hone2.civ@mail.mil, (703) 767-3402
- JPEO: LTC Marla Ferguson , marla.j.ferguson.mil@mail.mil, (301) 619- 8425

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

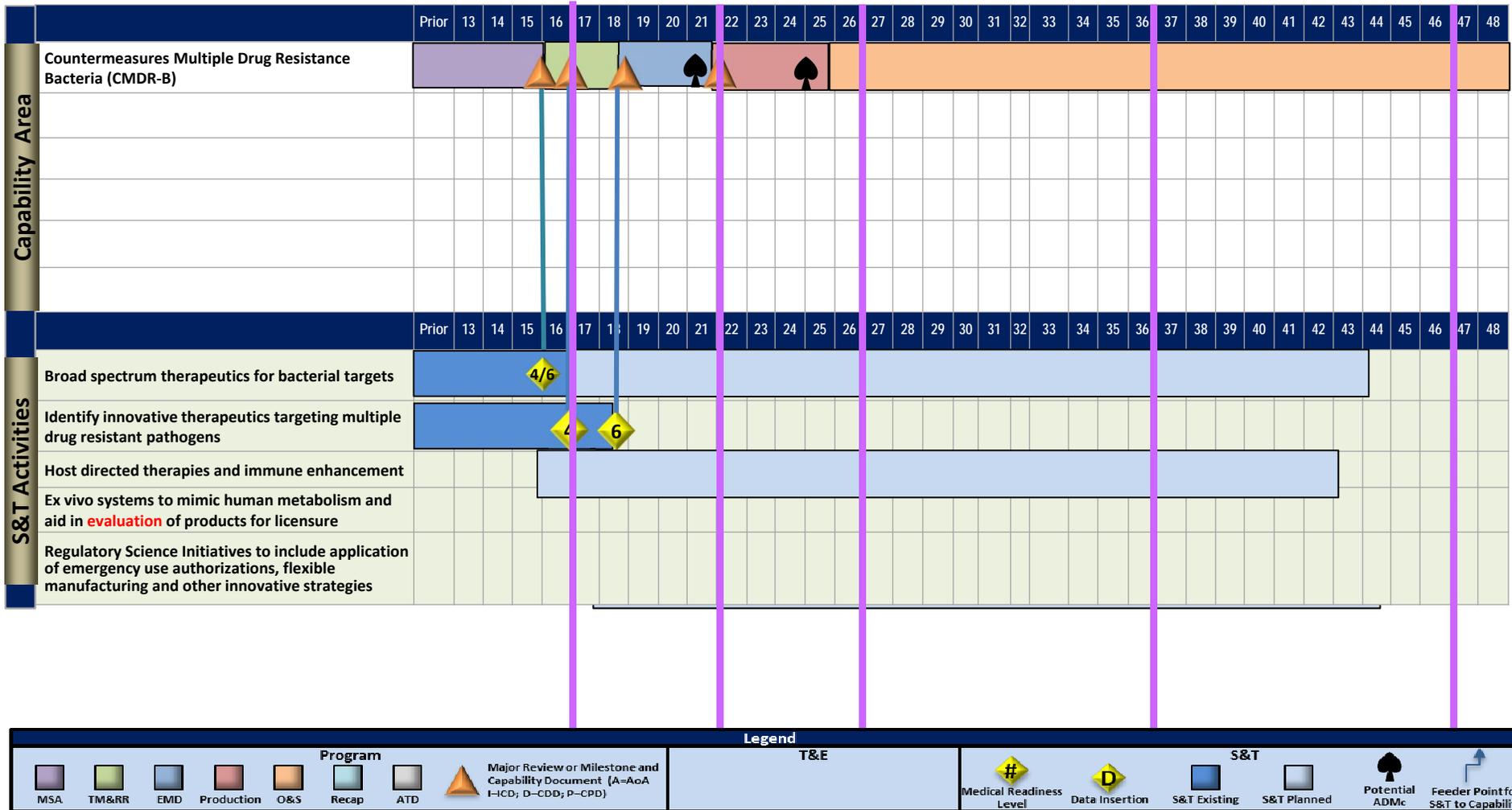
Biological Therapeutics - Viral



Current as of 20 April 2015

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

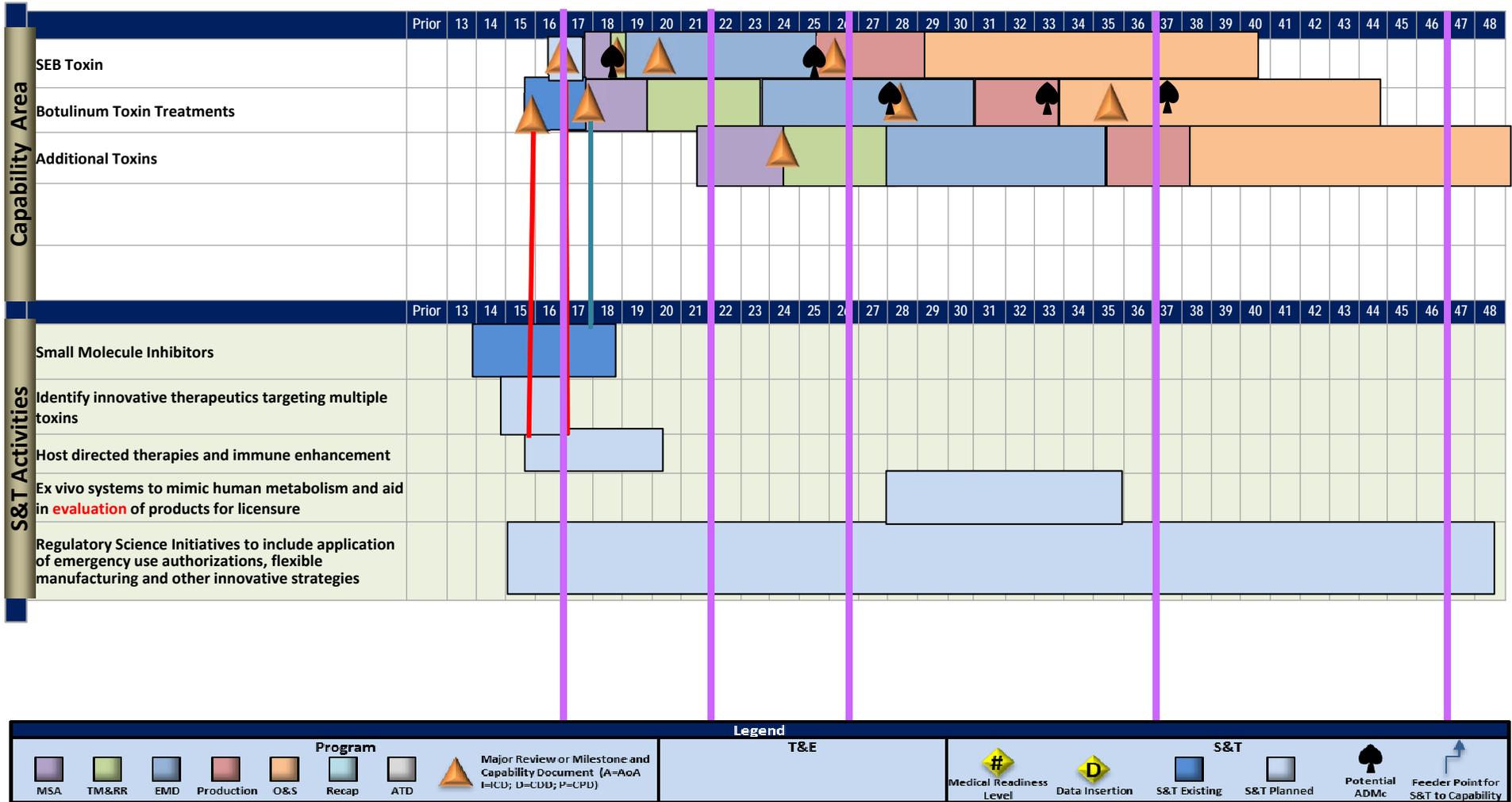
Biological Therapeutics - Bacterial



Current as of 20 April 2015

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

Biological Therapeutics - Toxins



Current as of 20 April 2015

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

Biological Therapeutics: Capability and Capability Gaps

- Current Capability:
 - FDA approved/licensed antibiotics with limited effectiveness against MDR BWA diseases
 - Supportive treatments against diseases and pathologies caused by BWA viruses and toxins
- Modernization Goals:
 - Develop and field broad-spectrum MCMs to treat the effects of MDR BWAs, as well as emerging infectious diseases, viruses, and biological toxins.
 - Develop the ability to rapidly produce therapeutics on a large scale when needed.
 - Pursue label extensions and sNDA's for existing FDA approved MCMs against BWA. Additionally, efforts to extend shelf life, indicators of efficacy and/or compromise should be at the forefront of future capability development.
- Capability Gaps:
 - Limited anti-viral and antitoxin treatments
 - Lack of broad-spectrum treatments against drug-resistant diseases

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Biological Therapeutics: Mid and Far-Term Modernization Goals

- Mid-Term (FY17-20):
 - Develop FDA licensed treatments against hemorrhagic fever viruses
 - Develop FDA licensed treatments against emerging infectious diseases
- Far-Term (FY21+):
 - Develop FDA licensed treatments against toxins
 - Develop therapeutic “platforms” for rapid development of treatments against new and evolving threats
 - Develop therapeutics for multi-drug resistant bacterial BWA

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Biological Therapeutics: S&T Focus Areas Viral

- Which gaps are we addressing?
 - Lack of FDA approved countermeasures against viral biological threat agents, including filo- & alphaviruses
 - PIP Goal 3.4.1 “Therapeutic Desired Outcomes”
 - Animal Models (For alpha, bunya, filo and arena viruses - small animals and/or NHPs: not yet developed, not optimized, and/or incomplete)
- What S&T efforts are planned or on-going?
 - Next generation LNP to improve the delivery of current siRNA candidates
 - Polyclonal antibodies targeting Ebola Sudan
 - Broad spectrum monoclonal cocktail and polyclonal therapies targeting filoviruses (Zaire, Sudan, Bundibugyo, Marburg)
 - Optimization of monoclonal antibody cocktail to expand spectrum.
 - Development of broad spectrum small molecule therapeutics targeting host and viral targets.
 - Immunomodulating therapies to modulate host response and modify course of disease.
 - Animal Models: Alphavirus, Bunyavirus and Filovirus

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

Biological Therapeutics: S&T Focus Areas Viral

- Which program (s) does the S&T support
 - HFV MCM is supported by the S&T work on platform-based therapeutics to remediate the effects of filovirus, and work to improve existing advanced development candidates
 - EID Tx small molecule broad spectrum MCM against multiple RNA virus BWA's including host targets
 - The discovery and development of monoclonal and polyclonal antibodies, small molecule drugs, host targeted therapies, and immunomodulation support the HFV and EID programs.
- When is the S&T needed?
 - The HFV Program has budgeted to transition the next generation LNP candidate beginning in FY17, and the Polyclonal candidate in FY18
 - The EID Program can exploit improved animal models as soon as they are available
 - S&T is ongoing to ensure a robust pipeline to supply backup candidates poised for transition.

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Biological Therapeutics: S&T Focus Areas Viral

- S&T “push” efforts
 - Discovery and development of antibody and small molecule broad spectrum therapies to address alphaviruses, focusing on VEEV but including WEEV and EEEV.
 - *Ex vivo* human mimetic systems will support preclinical toxicological and efficacy studies to de-risk candidates in their path to advanced development.
 - Nanostructured Active Therapeutic Vehicles (NaTV) program is developing novel delivery mechanisms to target therapeutic specifically to infected/intoxicated in a manner that will increase efficacy and decrease toxicity of approved and candidate drugs.

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Biological Therapeutics: S&T Focus Areas Bacterial

- Which gaps are we addressing?
 - Lack of MCM targeting bacterial BWA with MDR
 - Identification of host targets that mitigate the pathogenesis associated with MDR BWA
- What S&T efforts are planned or on-going?
 - Broad spectrum small molecule therapeutics for MDR BWA
 - Identify innovative host directed therapeutics to address multiple drug resistant pathogens
 - Investment in non-traditional therapeutic approaches, including but not limited to combination therapies, monoclonal antibodies, immunomodulators, phage, nucleic acid technologies (CRISPR, siRNA) to diversify portfolio and de-risk growing attrition of small molecule therapeutic candidates targeting bacterial factors.
 - Optimization of AMR Countermeasure Combinations Utilizing Drug Class Matrix
 - Core Antibiotic Screening Program supplies *in vitro*, small animal and NHP data demonstrating efficacy against BWA for early and late development and FDA approved candidates targeting clinical pathogens.
 - FDA approved and late development candidate Repurposing program.

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Biological Therapeutics: S&T Focus Areas Bacterial

- Which program (s) does the S&T support
 - CMDR-B is supported by the S&T work targeting bacterial BWA with MDR and S&T identification of innovative therapeutics targeting multiple drug resistant pathogens
- When is the S&T needed?
 - S&T is ongoing to ensure a robust pipeline to supply backup candidates poised for transition into CMDR-B for multiple evolving threats.
- S&T “push” efforts
 - *Ex vivo* human mimetic systems will support preclinical toxicological and metabolism studies to de-risk candidates in their path to advanced development.
 - Nanostructured Active Therapeutic Vehicles (NaTV) program is developing novel delivery mechanisms to target therapeutic specifically to infected/intoxicated in a manner that will increase efficacy and decrease toxicity of approved and candidate drugs.
 - Basic and early applied research to develop orthogonal methods to detect resistance and provide clinically actionable data to clinicians to determine therapeutic choice.

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Biological Therapeutics: S&T Focus Areas Toxins

- Which gaps are we addressing?
 - Lack of antitoxin treatments
 - Lack of broad-spectrum treatments against multiple serotypes (e.g., botulinum and enterotoxins)
- What S&T efforts are planned or on-going?
 - S&T program to develop small molecule candidates to mitigate intoxication by Botulinum Neurotoxins
 - Development of human monoclonal pan-BoNT antibody cocktail.
 - Expansion of program to discover and develop therapies to address intoxication by Staphylococcal Enterotoxins (SE), focusing on SEB.
- Which program (s) does the S&T support
 - Program is currently push.

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Biological Therapeutics: S&T Focus Areas Toxins

- When is the S&T needed?
 - Bio-Toxin TX: S&T Efforts to support advanced development in SEB, SE will occur in the FY16-FY20 time period
- S&T “push” efforts
 - BoNT and SEB therapeutic discovery and early development
 - *Ex vivo* human mimetic systems will support preclinical toxicological and metabolism studies to de-risk candidates in their path to advanced development.
 - Nanostructured Active Therapeutic Vehicles (NaTV) program is developing novel delivery mechanisms to target therapeutic specifically to infected/intoxicated in a manner that will increase efficacy and decrease toxicity of approved and candidate drugs.

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Biological Therapeutics: Technology Needs Viral

- What capability gaps are we addressing?
 - Lack of FDA approved countermeasures against Hemorrhagic Fever Virus (Filovirus)
 - PIP Goal 3.4.1 “Therapeutic Desired Outcomes”
 - Animal Models (Small animals and/or NHPs: not yet developed, not optimized, and/or incomplete)
- What Enablers are needed?
 - Pre-Clinical development required to file new INDs for existing drug platforms against new HFV targets
 - Animal Models: Alphavirus, Hantavirus and Filovirus
- When is the Enabler needed?
 - Post-MS C for TKM-Ebola (projected in FY21)
 - ASAP for animal models
 - FY22 for next generation antiviral
- What Innovations are needed?
 - Regulatory science for personalized medicine

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Biological Therapeutics: Technology Needs Bacterial

- What capability gaps are we addressing?
 - Lack of Bacterial MCM targeting MDR BWA
- What Enablers are needed?
 - Well qualified Animal models of aerosolized disease for bacterial BWA such as *B mallei*, *B pseudomallei*, *F tularensis* and *C burnetii* for the T&E of candidate MCMs
 - Diagnostics that enable the rapid identification of resistance genes in BWA such as *Y. pestis*, *B. anthracis*, *F. tularensis*, *B mallei*, *B. pseudomallei*, and *C. burnetii* at Point of Care.
- When is the Enabler needed?
 - MS B for the animal models of Bp, Bm, Ft, Cb (FY21)
 - FY22 (During EMD phase of MCM development. Before approval/licensure)
- What Innovations are needed?
 - N/A

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Biological Therapeutics: Technology Needs Toxins

- What capability gaps are we addressing?
 - Lack of anti-viral and antitoxin treatments
 - Lack of broad-spectrum treatments against drug-resistant diseases
- What Enablers are needed?
 - Bio-Toxin: Animal model for SEB is well characterized. Animal model work for Bot will likely be supported by USAMRIID through intra-department funding actions.
- When is the Enabler needed?
 - Bio-Toxin: Post MS B in FY23-25; unknown which other Toxin Tx will be authorized in the FY21-25 period.
- What Innovations are needed?
 - N/A

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

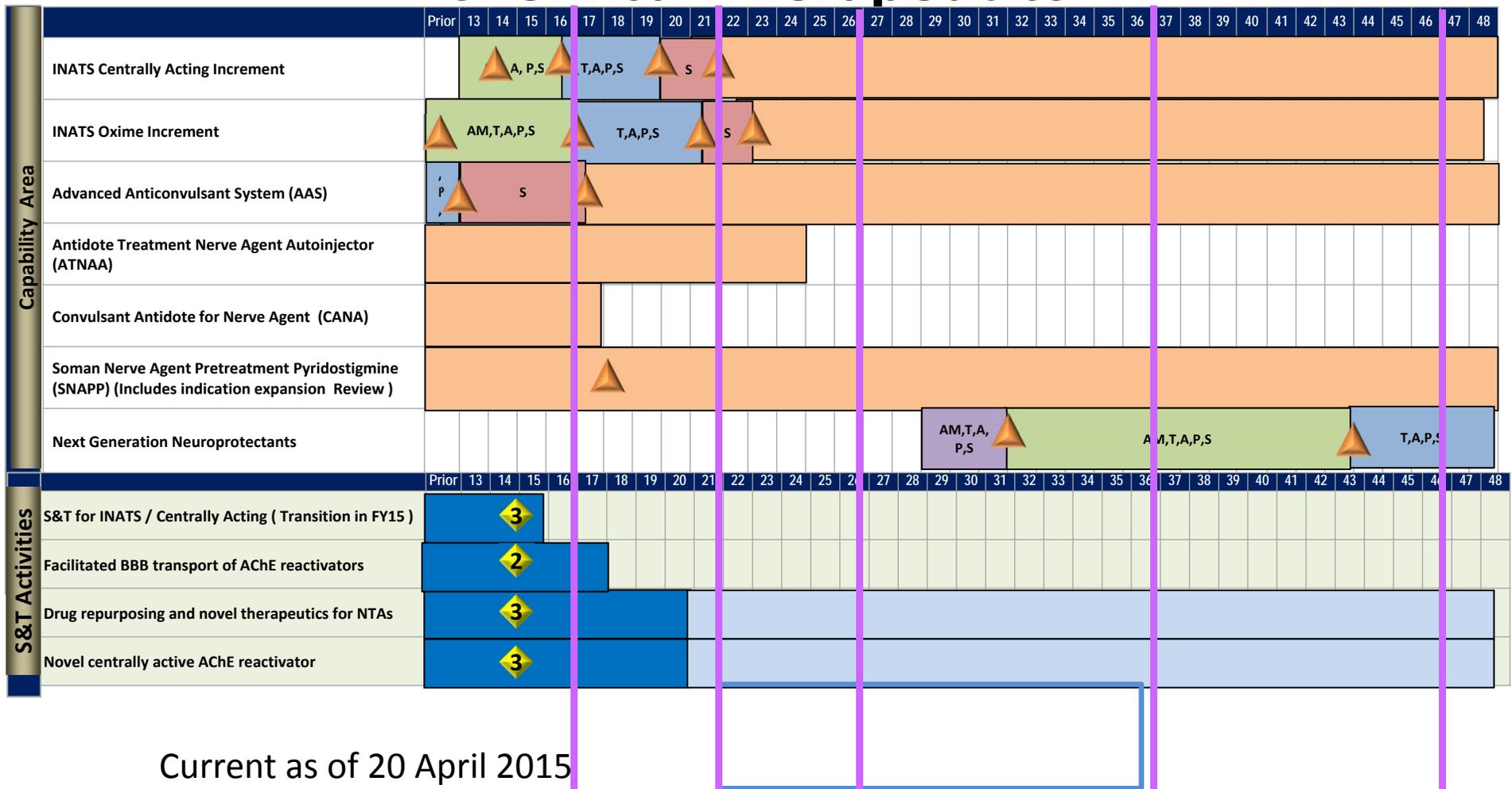
Biological Therapeutics

- DTRA: Dr. Amanda Smith, amanda.l.horstmansmith.civ@mail.mil, (703) 767-3372
- JPEO: LTC Eric Midboe, eric.g.midboe.mil@mail.mil, (703) 704-1178

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

Chemical Therapeutics



Current as of 20 April 2015



DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Chemical Therapeutics: Capability and Capability Gaps

- Current Capability:
 - Multi-step treatments effective against traditional nerve agents
- Modernization Goals:
 - Enhanced capability treatment regimen offering greater protection over a broader spectrum of toxic nerve agent threats than is currently available. Consists of a centrally-acting anticholinergic agent, a new and improved oxime, and expanded indications for a fielded pre-treatment product.
 - Develop and field MCMs to treat the effects of chemical hazards to include CWAs, as well as NTAs and industrials material. The therapeutics must also be FDA-approved for the use against existing chemical threats. Additionally, efforts to extend shelf life, expand operational use temperature ranges for MCMs, and provide visual indicators of efficacy and/or compromise should be at the forefront of future capability development.
- Capability Gaps:
 - Lack of FDA-licensed treatments

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Chemical Therapeutics: Mid and Far-Term Modernization Goals

- Mid-Term (FY17-20):
 - Obtain FDA approval for chemical therapeutics in development
 - Develop treatments against the effects of NTAs
 - Procure an advance anticonvulsant effective against the full spectrum of nerve agents
 - Provide advanced MCMs therapeutics for increased survival, reduced morbidity and decreased neurological damage against the effects of a broad spectrum of Organophosphorus (OP)–based Chemical Warfare Agents (CWA), not treated effectively by current therapeutics
- Far-Term (FY21+):
 - FDA licensed products to reduce the long-term health effects sustained from exposure to chemical agents
 - Develop platforms that support the rapid development of chemical therapeutics to address new threats
 - Extend shelf life by providing supportive studies and acceptance into FDA/SLEP program, expand operational use temperature ranges, and provide visual indicators of efficacy and/or product compromise

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Chemical Therapeutics: S&T Focus Areas

- Which gaps are we addressing?
 - Lack of non-traditional agent treatments
 - Lack of FDA-licensed treatments against blister, choking, blood agents
- What S&T efforts are planned or on-going?
 - Centrally-Active Reactivators for Acetylcholinesterase - inhibited by a broad spectrum of organophosphorus (OP) nerve agents
 - Neuroprotectants against OPNA-induced inflammatory effects in the CNS
 - Centrally-Active Anticholinergics (e.g. Scopolamine) drug-drug interactions
- Which program (s) does the S&T support
 - INATS is supported by the S&T addressing centrally acting therapeutics to improve the survivability from chemical agent exposure. S&T is also assisting with development of appropriate models to measure improvements in function that results from centrally acting therapeutics
- When is the S&T needed?
 - The INATS Program can exploit animal models as soon as they are available
- S&T “push” efforts
 - Proof of concept studies to utilize bioscavengers as a therapeutic

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Chemical Therapeutics: Technology Needs

- What capability gaps are we addressing?
 - Lack of non-traditional agent treatments
 - Lack of FDA-licensed treatments against blister, choking, blood agents
- What Enablers are needed?
 - Animal Models: Predictive of human exposure and safety to support FDA Animal Rule Requirements
 - Emerging Threats: Predictive toxicology models to support MCM development.
 - ADMET: Early developmental test and evaluation to improve MCM discovery and development. Effective capability to evaluate the drug properties of Absorption, Distribution, Metabolism, Excretion and Toxicity
- When is the Enabler needed?
 - MS B
- What Innovations are needed?
 - ADMET Center of Excellence-USAMRICD
 - Compound In silico design, medicinal chemistry and optimization methods
 - USG laboratories (LLNL, USAMRICD, ECBC) & foreign partners for MCM therapeutics development

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

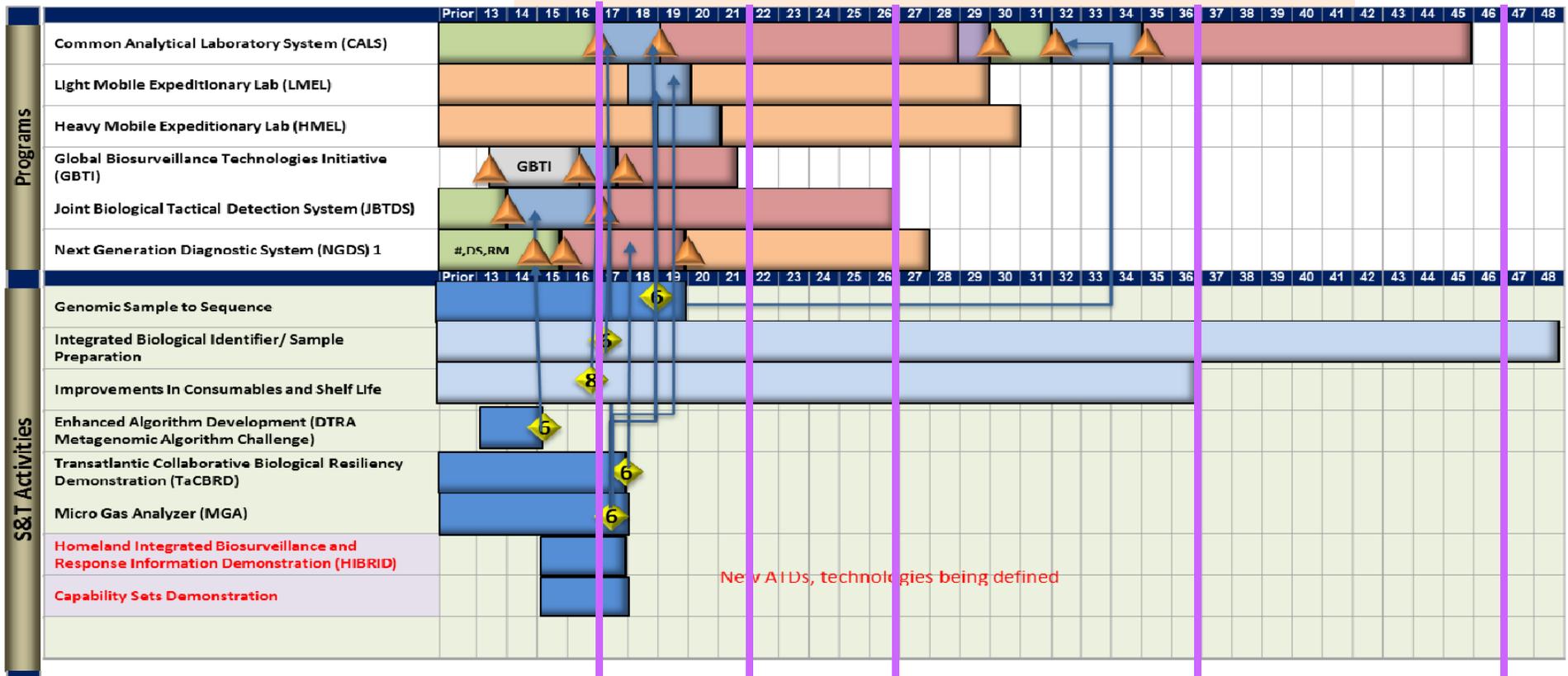
Chemical Therapeutics

- DTRA: Dr. Amanda Smith, amanda.l.horstmansmith.civ@mail.mil, (703) 767-3372
- JPEO: LTC Marla Ferguson, marla.j.ferguson.mil@mail.mil, (301) 619- 8425

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

Expeditionary Analytics



Current as of 20 April 2015



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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

Expeditionary Analytics : Capability and Capability Gaps

- Current Capability:
 - Robust domestic field confirmation
 - Low density OCONUS deployable capability
- Modernization Goals:
 - Increase the breadth of detection and identification capabilities in the field.
 - Improve accuracy and integration with C4ISR systems.
 - Field a new biological toxin identification capability
 - Decrease reagent costs and increase sample analysis throughput rates
- Capability Gaps:
 - Limited ability to analyze and identify unknown samples
 - Limited portability
 - Limited protocol standardization

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Expeditionary Analytics : Mid and Far-Term Modernization Goals

- Mid-Term (FY17-20):
 - Continue development and initial fielding of CALS
- Far-Term (FY21+):
 - Continue fielding CALS, while also managing obsolescence and logistics support of the CALS components as it becomes obsolete and as manufacturers develop new systems

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Expeditionary Analytics : S&T Focus Areas

- Which gaps are we addressing?
 - Limited ability to analyze and identify unknown samples
 - Limited portability
 - Limited protocol standardization
- What S&T efforts are planned or on-going?
 - Integrated Biological Identifier/Sample Preparation
 - Improvements in Consumable and Shelf Life
 - Enhanced Algorithm Development
 - Micro Gas Analyzer
- Which program (s) does the S&T support
 - Common Analytical Laboratory System (CALs)
- When is the S&T needed?
 - Ongoing (modernization efforts/equipment refresh/next generation)
- S&T “push” efforts
 - Genomic Sequencing

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Expeditionary Analytics : Technology Needs

- What capability gaps are we addressing?
 - Limited ability to analyze and identify unknown samples
 - Limited portability
 - Limited protocol standardization
- What Technologies/Enablers are needed?
 - Multiplex integrated analyzer for orthogonal detection of bio threat agent (BTA) exposure
 - Simplified sample preparation for analytic devices
 - Improved automation and integration of sample preparation and analytical components to reduce size, improve modularity, and tailorability, and reduce manual processing
 - Simplified supportability and reduced sustainment costs
 - Improved Information Management and Decision Support capabilities, leveraging emerging cloud computing and storage capabilities

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Expeditionary Analytics : Technology Needs

- When is the Technology needed?
 - Ongoing for modernization and upgrade efforts
- What Innovations are needed?
 - Small, portable identifiers for multiple matrix biologicals and chemicals that are simple to use and do not require a long logistics trail (limited quantity, long shelf life consumables)
- Points of Contact

DTRA

JPM

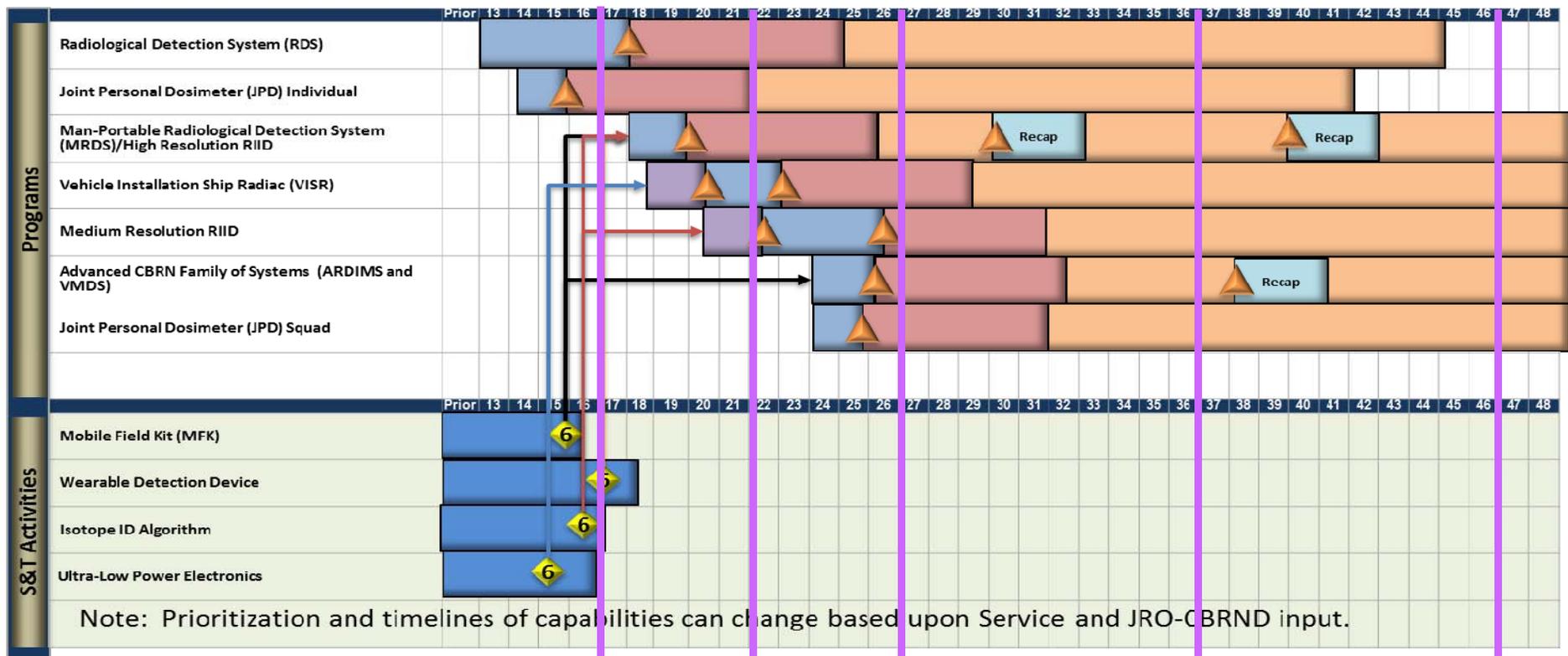
The forecast data is for planning purposes, does not represent a pre-solicitation synopsis, does not constitute an invitation for bid or request for proposal, and is not a commitment by the government to purchase the desired products and services

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

Expeditionary Analytics

- DTRA: Dr. Robert Botto, Robert.botto@dtra.mil,
- JPEO: COL James Choung, james.k.Choung.mil@mail.mil,
410-417-3310

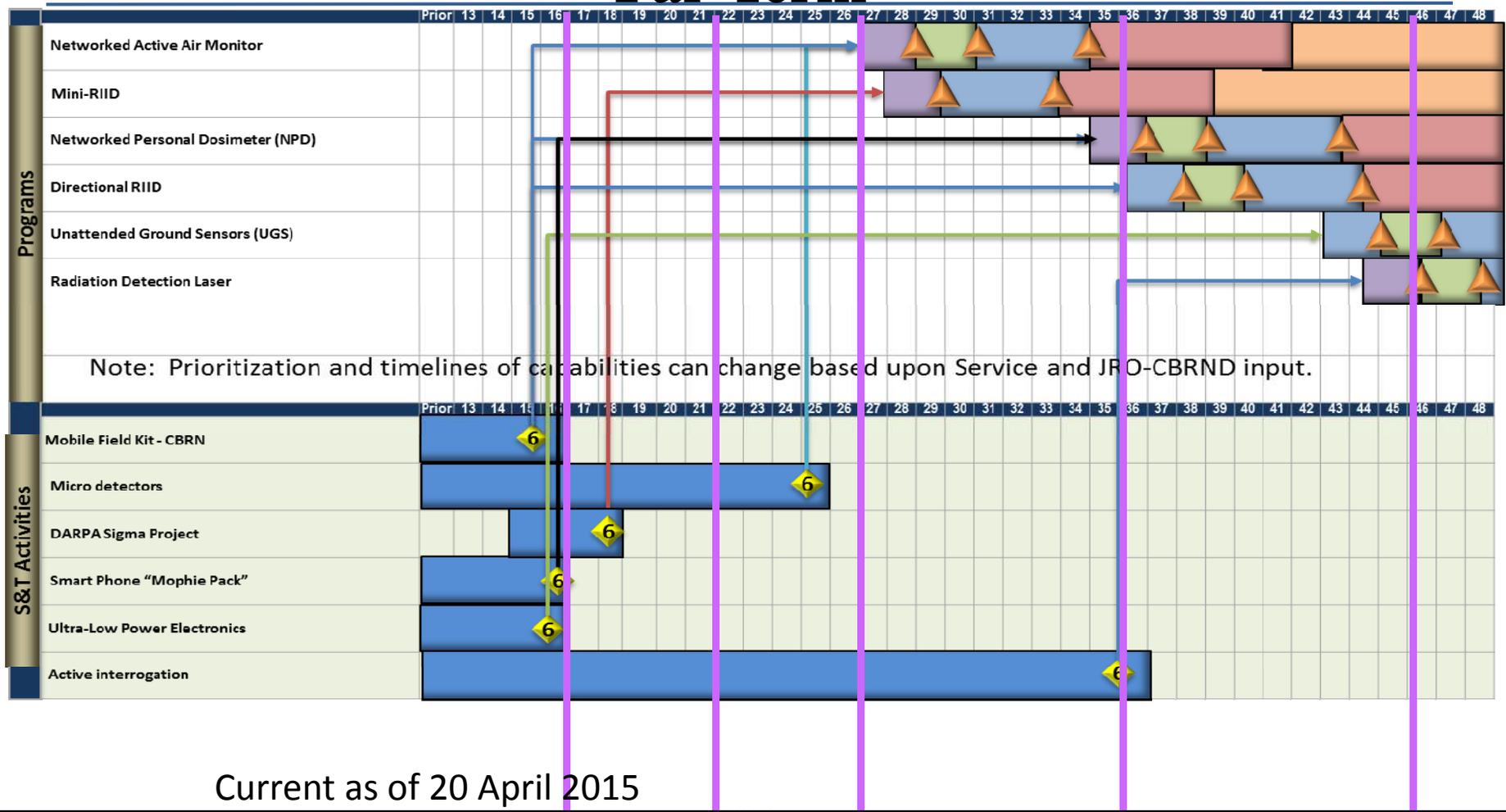
UNCLASSIFIED Radiological Detection Mid-Term



Current as of 20 April 2015

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED Radiological Detection Far-Term



Current as of 20 April 2015

Legend										
MSA TM&RR EMD Production O&S Recap ATD	Program Major Review or Milestone and Capability Document (A=AoA, I=ICD, D=CDD, P=CPD)				T&E		Medical Readiness Level Data Insertion		S&T S&T Existing S&T Planned Potential ADMc Feeder Point for S&T to Capability	

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Top RN Passive Defense (RNPD) Capability Investment Areas (CIA)

Joint Top 3 Based on Analysis

- *Isotope Identifiers*
- *Platform Mounted Detectors (Manned)*
- *Wide Area Unique Search*

Army:

- *Wide Area Unique Search*
- *RN Standoff Detection*
- *Platform Mounted Detectors (manned)*
- *Isotope Identifiers*
- *Radiological Portal Monitors (man-portable)*

Air Force:

- *Flash-Blindness Protection*
- *Isotope Identifiers*
- *Platform Mounted Detectors (PMD's) (Manned)*
- *Radiological Detection System (RDS)*

Marine Corps:

- *Isotope Identifier*
- *Dosimetry (Active)*
- *Area Detectors*

Navy:

- *Isotope Identifier*
- *Telescoping Remote Detection*
- *Wide Area-Unique Search*
- *Flash-Blindness Protection*

Note: CIAs planned to be re-prioritized every 2 years by JRO-CBRND

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Radiological Detection: Other Prioritized CIAs

- Flash-Blindness Protection
- Telescoping Remote Detection
- Platform Mounted Detectors (Unmanned)
- Area Detectors (Man-Portable)
- Radiological Portal Monitors (Fixed)
- Radiological Portal Monitors (Manned)
- Sample Containment and Handling
- Continuous Air Monitors
- Thermal Curtains Protection Systems
- Sample Collection
- Area Detectors (Fixed)
- Internal Dosimeter
- RN Standoff Detection
- Bio-dosimetry

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Radiological Detection : Mid and Far-Term Modernization Goals

- Mid-Term (FY17-20):
 - Consolidate DoD's legacy radiation survey meters (AN/PDR-77, MFR Suite, and ADM-300) into a joint capability with increased sensitivity and common units of measure
 - Incorporate lessons learned from Operation TOMODACHI
 - Reduce logistics burden and sustainability costs by developing Joint capabilities to replace current COTS items
 - Achieve National Voluntary Laboratory Accreditation Program (NVLAP) accredited dose of record for each Serviceman
 - Improved wide area search capabilities to support Sensitive Site Assessment, Sensitive Site Exploitation, Interdiction, Elimination, and National Technical Nuclear Forensics missions
 - Improved situation awareness through network and integration
- Far-Term (FY21+):
 - Capability to identify and provide a visual image to display the location of the radiological hazard
 - Improved wide area search capabilities beyond 100m
 - Improve area monitoring

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Radiological Detection: Mid-Term Radiological Detection Program Efforts

- Radiological Detection System (RDS): FY13 Program Started
 - Will provide the Warfighter with the capability to measure alpha, beta, gamma, neutron, and low energy x-rays.
- Joint Personal Dosimeter (JPD): FY14 Program Started
 - Intended to provide a system to record and retrieve a Service Member's exposure to radiation.
- Man-Portable Radiological detection System (MRDS): FY17 Projected Start
 - Provides capability to rapidly search during Sensitive Site Assessments and definitively find Special Nuclear Materials (SNM) and weapons during Sensitive Site Exploitation missions; supports interdiction of known or suspect areas for radioactive devices, SNM or weapons
- Vehicle Installation Ship Radiac (VISR): FY18 Projected Start
 - Rugged networked point detector that can be integrated onto vehicles, ships and fixed sites to provide warning for crews and personnel
- Medium Resolution RIID: FY20 Projected Start
 - Capability will provide presumptive identification of radiological hazards.
- Advanced CBRN Family of Systems: FY23 Projected Start
 - Will provide Vehicle and Airborne Mounted Radiological Search Capabilities
- Joint Personal Dosimeter (JPD) Squad: FY23 Projected Start
 - Real-time dose rate meter to replace the UDR-13 series

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Radiological Detection: Far-Term Radiological Detection Program Efforts

- Networked Active Air Monitor: FY27 Projected Start
 - Real-time monitoring of airborne alpha and beta particulate activity in a designated area
- Mini-RIID: FY28 Projected Start
 - Capability will be a palm-sized, simple, less expensive, low resolution identification of radiological hazards for the general purpose forces.
- Networked Personal Dosimeter (NPD): FY34 Projected Start
 - Networked gamma and neutron dosimeter for increased situational awareness
- Directional RIID: FY35 Projected Start
 - Capability will locate, identify, characterize RN material and provide a visual image to display the location of the radiological hazard.
- Unattended Ground Sensor (UGS): FY42 Projected Start
 - Provide networked, inexpensive, unattended RN detection, localization, and presumptive identification capability
- Radiation Detection Laser: FY43 Projected Start
 - To locate and detect RN materiel from an operationally significant distance to provide Commander with the situational awareness of the surrounding environment

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Radiological Detection :

S&T Mid-Term Focus Areas

- Which gaps are we addressing?
 - Isotope Identifiers
 - Platform Mounted Detectors (Manned)
 - Wide Area Unique Search
- What S&T efforts are planned or on-going?
 - Mobile Field Kit (MFK) CBRN: Enhanced situational awareness, sensor integration and fusion
 - Wearable Detection Device: Neutron detection vest based on Micro-structured Semiconductor Neutron Detectors (^3He replacement technology)
 - Isotope Identification Algorithm Evaluation: Isotope ID Algorithm Evaluation – Evaluation of various isotope ID algorithms to improve ID fidelity, time-to-detection, and false alarm rate.
 - Polaris: Compact Compton imager based on pixelated CZT. Near HPGe spectral resolution. Man-portable. Provides isotope specific radiation images with resolution approaching 2 cm at 1 m.
 - Mission Design Tool : Software application that optimizes radiological search mission operational parameters based on mission type, threat description, and detector types.
 - Ultra-low Power Electronics: Tailor design to eliminate power-hungry components in COTS detectors
- Which program (s) does the S&T support
 - Man-Portable Detection System (MRDS)
 - All RIID Programs (High Resolution, Medium Resolution, Mini and Directional)
 - VISR

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Radiological Detection : S&T Far-Term Focus Areas

- Which gaps are we addressing?
 - Nuclear Imaging and Characterization
 - Wide Area Search and Localization
- What S&T efforts are planned or on-going?
 - Fast neutron Camera: Time-of-flight neutron imager with pulse shape discriminating plastic scintillators and silicon photomultipliers. Light weight, ruggedized, low power
 - Orion CZT Gamma-ray imager: Next Generation Polaris, reduced power requirements, improved spectral and spatial resolution, potential for fast-neutron detection capability
 - High-resolution Focal Plane: coded aperture gamma-ray imager with exceptional spatial resolution, optimum for low energy gamma-rays (i.e., HEU)
 - Ad-Hoc Fission Chain Detection: Multiplicity measurement architecture for aggregating and evaluation data from multiple COTS/GOTS neutron detectors. Ability to definitively identify SNM sources without increasing operator load-out
- Which program(s) does the S&T support
- When is the S&T needed
 - Within the next 5-10 years

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

UNCLASSIFIED

Radiological Detection :

Needs Summary

- What capability gaps are we addressing?
 - High Priority CIAs
- What Advanced Development Enablers are needed?
 - Net-Ready: Design COTS item modular enough to adapt to meet government CyberSecurity requirements
 - Ruggedization: Design COTS items modular enough to easily adapt to meet military standards
 - Helium 3 Alternatives: Continue to pursue alternatives for search and ID missions
 - Training: Capability with real equipment functionality without the requirement for a radiation source
 - Prompt Gamma/Prompt Neutron: Design COTS items modular to easily adapt for a prompt gamma and prompt neutron requirement
 - Modular and open architecture for tech refresh
- What S&T Enablers are needed?
 - Improved Algorithms for isotope identification
 - Low cost, dual-mode (gamma and neutron) scintillation materials
 - Low power, high-resolution, compact photodetectors
 - Low-power electronics

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

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

Radiological Detection

- DTRA: LTC Steven Webber,
steven.p.webber.mil@mail.mil,
- JPEO: Mr. Valentin Novikov,
valentin.movikov.civ@mail.mil, 410-436-6817