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International Assessment of Unmanned Ground Vehicles

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Message from the Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs

The Department of Defense (DoD) Chemical and Biological Defense Program's (CBDP) mission is to enable the Warfighter to deter, prevent, protect, mitigate, respond, and recover from chemical, biological, radiological, and nuclear (CBRN) threats and effects as part of a layered, integrated defense. To support this mission, the CBDP has four enduring strategic goals that define the desired programmatic end-states for the program and its Enterprise Components[1]:

1. Equip the force to successfully conduct military operations to prevent, protect, and respond to CBRN threats and effects.
2. Prevent surprise by anticipating CBRN threats and developing new capabilities for the Warfighter to counter emerging threats.
3. Maintain infrastructure to meet and adapt current and future needs for personnel, equipment, and facilities within funding constraints.
4. Lead the CBDP Enterprise to integrate and align activities to fulfill the CBDP mission.

Among a range of important fiscal year (FY) 2013 achievements, the CBDP focused on four emphasis areas essential for a robust defense:

- Diagnostics. The DoD invested in chemical, biological, and/or radiological (CBR) detectors and diagnostics to protect the Warfighter by quickly and effectively identifying, characterizing, and diagnosing pathogens and diseases to inform timely and appropriate treatment.
- Biosurveillance. The DoD invested in a biosurveillance capability that will mitigate the threat from CBR events (intentional, accidental, or naturally occurring) by informing leadership with essential information to support decision making in a timely manner through a technical architecture made up of disease surveillance tools, to include fielding capable diagnostic, detection, and information management and analytics technologies.
- Medical Countermeasure (MCM) Development. The DoD invested in MCMs to pre-treat, protect, and treat the Warfighter against chemical and biological (CB) threats. Several federal agencies collaborate to deliver MCMs to those affected at the right time in adequate supply. DoD focuses on protecting forces against disease in theaters of operation and against weaponized CB threats.
- Non-Traditional Agent (NTA) Defense Capabilities. The DoD invested in NTA defense capabilities in support of the Warfighter and our broader national security objectives. In support of the *National NTA Defense Research, Development, Test and Evaluation (RDT&E) Strategy*, dated October 2010, efforts provide and enhance capabilities to mitigate the threat from non-traditional and emerging chemical threats. DoD is committed to developing NTA defense capabilities in our priority areas of detection, MCMs, decontamination, and protection.

These efforts and the other critical work to defend against CBR threats conducted by the CBDP enable deterrence, prevention, protection, mitigation, response, and recovery from CBR attacks in defense of the Warfighter and the nation[2].

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[1] For a list of CBDP Enterprise Components, please see Enclosure A.

[2] Title 50 U.S. Code Section 1523, (a) 1: The overall readiness of the Armed Forces to fight in a chemical-biological warfare environment and shall describe steps taken and planned to be taken to improve such readiness.

Introduction

The DoD 2014 Annual Report to Congress on CB warfare defense, per title 50 U.S. Code section 1523, highlights CBDP FY 2013 accomplishments in emphasis areas mentioned in the *2014 Quadrennial Defense Review*, the *National Strategy for Countering Biological Threats*, the *National Strategy for Biosurveillance*, and the *2012 CBDP Strategic Plan*.

Advances in Diagnostics

Requirements Integration

The Joint Requirements Office for Chemical, Biological, Radiological, and Nuclear Defense (JRO-CBRND) developed and staffed the Capability Development Document (CDD) for Next Generation Diagnostics System (NGDS) Increment 1 addressing a requirement for Polymerase Chain Reaction-based diagnostic analysis for the presence of bacteriological warfare agents in clinical specimens using Commercial Off-the-Shelf (COTS) platforms instead of DoD-specific platforms.

The JRO-CBRND also initiated an Analysis of Alternatives (AoA) for NGDS Increment II. The AoA will identify capabilities which will allow medical providers to inform commanders of the presence or effects of CBR hazards, such as infectious diseases, Biological Warfare Agents (BWA), Chemical Warfare Agents (CWA), Toxic Industrial Chemicals (TIC), and Toxic Industrial Materials as well as ionizing radiation within a variety of tactical and permissive/non-permissive environments.

Science and Technology

Numerous discussions were held to identify and prioritize potential collaborations with the World Health Organization (WHO) on Point-of-Care (POC) diagnostics. Potential areas of collaboration included identifying countries and/or clinical settings, diseases, devices, technologies, and assays. The 24-Month Challenge hit early successes in working with the U.S. Air Force Central Command Surgeon General's Office (AFCENT/SG) during the summer of 2013. Medical personnel used a respiratory flu assay to test sick active military stationed in Ali Al Salem, Kuwait, with subsequent data upload to the AFCENT/SG cloud.

The Joint Science and Technology Office for Chemical and Biological Defense (JSTO-CBD) also executed a successful demonstration of the Edge Bioinformatics software. The Edge software prototype demonstration gave stakeholders a feel for the analytic capabilities of the system, the intuitiveness of the user interface, and the small footprint of the computational hardware on which it runs.

Additionally, during the winter of 2013, the Defense Threat Reduction Agency (DTRA) Challenge team funded work in Sierra Leone with the U.S. Naval Research Laboratory using the quick diagnostic assays and an automated reader for uplink to the Biosurveillance Ecosystem (BSVE), demonstrating wireless communications capabilities in austere, field-forward environments. These two successes demonstrate how diagnostic results can be pushed further into the field and be made available quickly for faster biosurveillance and situational awareness.

Research, Development, and Acquisition

The Joint Program Executive Office for Chemical and Biological Defense (JPEO-CBD) awarded three contracts initiating the competitive prototyping phase for the NGDS Increment 1. The NGDS Increment 1 contracts also provide for the development of capabilities in support of the Common Analytical

Laboratory System and Joint Biological Tactical Detection System programs as well as other DoD and Interagency diagnostics requirements.

Assays from the JPEO-CBD's Critical Reagents Program (CRP) detected the presence of the toxin ricin in letters bound for the President of the United States and U.S. Senator Roger Wicker. CRP efforts to improve upon the performance of materials used in these assays significantly mitigate the threats posed by attacks of this type.

Advances in Biosurveillance

The "Deep Dive" meeting for the Office of the Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs (OASD(NCB)) and the Office of the Assistant Secretary of Defense for Health Affairs (OASD(HA)) included the following key successes:

- The creation of a Disease Forecasting Workgroup that has endeavored to help determine the usefulness of multiple disease forecasting efforts across DoD. This working group is cataloging and assessing forecasting-related activities in the DoD.
- The DTRA Cooperative Biological Engagement Program and Armed Forces Health Surveillance Center (AFHSC)/Global Emerging Infections Surveillance and Response System have increased coordination to align and leverage overseas activities on numerous activities, including sharing access to and input on proposals, projects, reports, and opportunities to engage international partners.
- Activities toward enhancing the DoD Biosurveillance capability as manifested in the AFHSC continued. Further, AFHSC now hosts a part-time liaison from OASD(NCB) and an American Association for the Advancement of Science (AAAS) S&T Fellow that are integral to the execution and tracking of the OASD(HA)/OASD(NCB) Memorandum of Understanding (MOU) Operational Plan and other activities to support the Division of Integrated Biosurveillance's activities.

OASD(HA) and OASD(NCB) also developed a memorandum titled "Incorporation of Health-Based Criteria into CBRN Defense Plans, Policies, and Acquisition Programs" that directs CBDP to incorporate health-relevant criteria into the efforts of developing detection, protection, and decontamination capabilities.

Requirements Integration

The JRO-CBRND completed development and received endorsement from the Services and the Joint Requirements Oversight Council (JROC) for the Biosurveillance Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities, and Policy Change Recommendation, which focuses on documenting and implementing non-materiel solutions to improve the DoD's biosurveillance capabilities. JRO-CBRND also completed the capability document for non-materiel support to the Biosurveillance program.

Science and Technology

The JSTO-CBD continued the development of the BSVE program, an innovative, proof-of-concept effort that will leverage existing and emerging commercial and Government technologies to create an overarching system that will integrate and visualize the surveillance, detection, investigation, and response timeline for early warning and early confirmation. Additionally, NGDS Increment 2 will provide diagnostic data by ensuring that Point-of-Need (PON) diagnostics can wirelessly connect to biosurveillance systems to provide real time awareness of biological threats. The JPEO-CBD stood up a

new office, the Biosurveillance Management Office (JPEO-BMO) to support the development and delivery of innovative materiel and non-material solutions to support operational DoD needs and to share these solutions with partners. JPEO-CBD and JPEO-BMO also worked with the JSTO-CBD BSVE initiative to identify potential technologies and tools that could be incorporated into the development of a Biosurveillance Portal (BSP) to facilitate situational awareness and analysis.

Research, Development, and Acquisition

The Executive Office of the President, Office of Science and Technology Policy selected JPEO-CBD representatives to co-chair the Biosurveillance Science and Technology (S&T) Working Group that developed and published the *National Roadmap for Biosurveillance S&T* (June 2013).

The JPEO-CBD continued to address U.S. Forces Korea (USFK) and U.S. Pacific Command (USPACOM) biosurveillance and biodefense requirements through the Joint USFK Portal and Integrated Threat Recognition Advanced Technology Demonstration (ATD).

Significant progress was made by the JPEO-CBD toward enhancing the ability of the United States and Republic of Korea (ROK) to prepare for and respond to naturally occurring or intentional biological incidents in a whole-of-government manner through substantial contributions to the ABLE RESPONSE 13 Exercise (AR 13). These contributions included developing the USFK BSP prototype, a Web-based enterprise environment to facilitate unclassified collaboration, communication, and information sharing within and across organizations to support the detection, management, and mitigation of man-made and naturally occurring biological events.

Finally, the JPEO-CBD developed the Consolidated Bio-Threat Knowledgebase v1.0 reference tool consisting of an analysis of biological threats, a study of different assessments of biological threats, and a searchable database that links individual agents with related literature and threat data.

Advances in Medical Countermeasures

Requirements Integration

The JROC approved the CDD for Joint Medical Biological Warfare Agent Post-Exposure Prophylaxes and Therapeutic Pharmaceutical(s): Emerging Infectious Disease (EID) MCM(s).

The JRO-CBRND developed and staffed a CDD for Joint Medical Biological Agent Therapeutic Pharmaceuticals: Filovirus Increment. This document is entering the Joint Capabilities Integrations and Development System approval process.

The JROC approved the Capability Production Document (CPD) for Joint Medical Chemical Warfare Agent Therapeutic Pharmaceuticals: Advanced Anticonvulsant System (AAS) Increment.

The JRO-CBRND also developed and staffed a CPD for Joint Medical Biological Warfare Agent Prophylaxes: Botulinum Toxin Vaccine Increment. Approval of the CPD is pending a revision of the Acquisition Program Baseline.

In coordination with the JRO-CBRND, OASD (HA), as the Study Lead Component, completed two medical AoA studies: the Western, Eastern, and Venezuelan Equine Encephalitis (WEVEE) Viruses Prophylaxis AoA; and the Centrally Acting Nerve Agent Treatment System (CANATS) AoA.

Science and Technology

MCMs against Biological Agents

Two vaccine candidates began the transition from S&T to advanced developer management – a recombinant protein-based Ricin vaccine and a viral replicon-based vaccine against Alphaviruses (WEVEE). Additionally, JSTO-CBD submitted an Investigational New Drug application to the U.S. Food and Drug Administration (FDA) to begin clinical tests of a DNA-based vaccine against Venezuelan Equine Encephalitis Virus. Challenge stocks for the non-human primate model of WEVEE infection were produced successfully, and initial infectivity studies have been completed.

Prophylaxis efforts during FY 2013 included the development of vaccines that protect the Warfighter against aerosolized viral, bacterial, and toxin threat agents. Therapeutic efforts included the novel development or repurposing of antibacterial drugs (including multi-drug resistant species/strains), the advancement of antibody drugs effective against Ebolavirus in primates, and the development of drug leads that target the Botulinum toxin A peptidase. Two pilot Translational Teams were established to further facilitate successful transitions. Animal model development for *Burkholderia* species, Filoviruses, and Alphaviruses continued, as it is critical for testing, evaluating, and licensing vaccines and therapeutics against pathogens.

More than 40 additional novel compounds from seven different industrial partners for activity against known biodefense threats were screened by the JSTO-CBD. Furthermore, JSTO-CBD, partnering with GlaxoSmithKlein, sponsored a program in which a single compound has demonstrated broad-spectrum activity against multiple biothreat agents (anthrax, tularemia, plague) and has the potential to overcome antibiotic resistance through a novel mechanism of action, the New Topoisomerase Bacterial Inhibitor, a multi-drug resistant, broad spectrum antibiotic. The compound has also successfully advanced to Phase I clinical studies successfully. JSTO-CBD completed data analysis and submission of the final report to industry in support of the repurposing of Moxifloxacin, an FDA-approved antibacterial drug, for an indication against plague. Additionally, work was completed on pharmacokinetic studies for Moxifloxacin to determine humanized dose levels to be used in Good Laboratory Practice efficacy studies for treatment of inhalational anthrax in cynomologus macaques. An additional JSTO-CBD project recently identified hit peptide activators of the host immune response to plague, anthrax, and tularemia infections.

In the antiviral MCM area, JSTO-CBD completed the first known successful "trigger-to-treat" survival studies where the treatment is provided four to five days post-infection, after confirming illness using clinical indicators. JSTO-CBD performed these studies in monkeys using a monoclonal antibody cocktail against lethal Ebola virus infection. Further progress in the immunotherapy area resulted in preliminary identification of a protective antibody against Alphavirus infection. Finally, JSTO-CBD identified novel, triple-reactive monoclonal antibodies with broad spectrum recognition of Filoviruses. For drug repurposing efforts, JSTO-CBD confirmed activity of several FDA-approved drugs in successfully treating Ebola infection in mice. Further initial screenings have discovered FDA-approved drugs with activity against several species of Alphaviruses and Flaviviruses. Other repurposing efforts identified and began characterizing two established FDA-approved cancer treatment drugs with activity against Filoviruses and Poxviruses.

MCMs against Chemical Agents
Several advances in this area used *in vitro* tests as well as animals as ethical surrogates to model human exposure to deadly chemical agents.

The program demonstrated a novel therapeutic designed to be active and effective in the central nervous system to reduce the incidence of seizures caused by multiple G and V nerve agents in an animal model to help reduce the damage to the brain caused by exposure to nerve agents.

Key proteins for use as a bioscavenger (a compound that acts as a sponge to remove nerve agent before it can cause harm) were produced from multiple sources, potentially reducing the cost and increasing the availability of the products. In addition, investigators developed a novel catalytic enzyme demonstrated *in vitro* to be capable of protecting against G and V agents, offering similar protection at much lower doses.

Research, Development, and Acquisition
The JPEO-CBD activated Joint Project Manager (JPM) MCM Systems, placing its suite of MCM products and capabilities – from diagnostics to vaccines to therapeutics to manufacturing – under one roof to enhance the Family of Systems approach to delivering medical solutions to the Services.

An AAS effort successfully completed a Milestone C Acquisition Review toward an improved autoinjector for the delivery of nerve agent treatment. A New Drug Application was submitted to the FDA, approval of which is the final step needed to take the autoinjectors into production for delivery.

The JPEO-CBD's Recombinant Botulinum Vaccine program held a successful "End-of-Phase 2" meeting with the FDA, allowing for the initiation of a Phase 3 clinical trial.

An EID MCM Acquisition Program successfully completed a Phase 2 clinical trial with more than 500 patients in the United States, thereby indicating safety and efficacy of Favipiravir (T-705). Efficacy studies against panels of pathogens demonstrated usefulness as a broad-spectrum MCM, including effectiveness against drug-resistant strains.

The Countermeasures for Multi-Drug Resistance-Bacterial MCM Acquisition Program was established to provide therapeutics for drug-resistant bacteria, including BWAs and organisms that are modified for Multi-Drug Resistance, which cannot be mitigated by existing MCMs. A Market Survey and Request for Information completed in June 2013 identified multiple potential alternative technologies that can meet the program's aim of fighting the increasing problem of drug resistance in bacteria, including BWAs and war wound pathogens.

The JPEO-CBD awarded the MCM Advanced Development and Manufacturing contract to a performer in Alachua, FL, to establish, commission, and validate an agile, flexible, and modular capability to develop and manufacture FDA-approved MCMs. The contract was awarded through a full and open competition on the basis of best overall value to the Government. This will support advanced development and production, beginning with a selected candidate through full manufacturing.

Advances in Non-Traditional Agent Defense

Requirements Integration
The Uniform Integrated Protection Ensemble (UIPE) AoA was completed in December 2012, and the Joint Expeditionary Collective Protection (JECP) CPD was approved in January 2013.

Science and Technology
NTA agent characteristics as well as estimates of human exposure limits (from skin and inhalation exposures) were determined by JSTO-CBD for prioritized agents. During the process of characterizing the physical properties of the NTAs, they developed methods and models for safe and realistic measurement of their properties, fate, and persistence. In FY 2013, the program delivered reports on the synthesis and physical properties of priority NTAs as well as human toxicity estimates for VX and three priority NTAs. This work also reported on the relationship between exposure dose and time to onset of symptoms. Other efforts in Threat Agent Science created a device that characterizes outdoor atmospheric impact (e.g., light, temperature, humidity) on biological aerosols.

Research, Development, and Acquisition
The JPEO-CBD successfully installed and initiated verification activities for the Whole System Live Agent Test Chamber at Dugway Proving Ground, Utah, to provide the test community with a Biological Safety Level 3 agent aerosol containment chamber designed and constructed for biological agent point detection system testing.

The fielding of JPEO-CBD's Domestic Response Capability (DRC) Kits to National Guard Bureau (NGB) Weapons of Mass Destruction (WMD) Civil Support Teams (WMD-CST) continued. At the conclusion of FY 2013, 42 of 57 WMD-CSTs had received DRC Kits.

Collaboration continued between JPEO-CBD and stakeholders to respond to the NTA threat and improved their roadmap for developing capabilities against NTAs.

Enterprise Advancements in CBDP Science and Technology

Basic Research
The program developed an artificial nanomotor based bio-separation technique, which potentially allows for selective, "on-the-fly" capture and isolation of biological targets (anthrax, etc.) from unprocessed complex media (soils, pond water samples, etc.). JSTO-CBD demonstrated the ability to rapidly separate and concentrate bacterial cells for subsequent detection using a low-cost, microfluidic approach that exploits the dielectrophoretic properties of the cells and media. In artificial enzyme research, JSTO-CBD designed and demonstrated binding sites and catalysts for selected proteins and small molecules. The program also developed extraordinarily catalytic materials to destroy nerve agent simulants. Lastly, JSTO-CBD identified bacterial secretion system factors that impact the course of disease and could provide targets for future MCMs.

Detection
The metagenomics Algorithm Challenge was developed and executed by JSTO-CBD to enhance the capability to characterize and identify all components in clinical and environment samples from next-generation sequencing data. Additionally, the program continued developing the micro gas analyzer

(Comprehensive Two-dimensional Gas Chromatography-Mass Spectrometry) along with infrared and Raman spectroscopy detection platforms to support Next Generation Chemical Detection.

Individual Protection
Treatments were developed by JSTO-CBD that allow fabrics to repel or shed oils and water to reduce penetration of liquid chemical agents and increase the useful life of protective garments. In addition, the S&T effort is investigating new approaches using dynamic, multifunctional materials for CB protection that will increase protection while lowering the thermal burden on the Warfighter. JSTO-CBD also developed a dual cavity respirator prototype.

Collective Protection
Residual life indicators were developed by JSTO-CBD to give an accurate assessment of filter chemical protection capacity at a given time and secured a Rapid Innovation Fund effort – funded by the Office of the Assistant Secretary of Defense for Research and Engineering – aimed at transitioning battlefield contaminant knock-down filters to large ships.

Hazard Mitigation
JSTO-CBD completed the transition of a solid oxidizer decontaminant technology that provides an effective, non-corrosive alternative to currently fielded technologies. JSTO-CBD transitioned data describing the residual hazards associated with contaminated human remains; the performance range of a hot, humid air sporicidal decontamination system for aircraft; and the performance of surfactants to remove chemical contamination from military relevant surfaces physically.

Test Methods
Physical countermeasures S&T efforts developed new test methods and conducted ATDs to demonstrate the use of developing technologies in a field setting and help develop new Concepts of Operations. JSTO-CBD transitioned test methods and results for the Joint Biological Agent Decontamination System, which showed the performance envelope of hot, humid air inactivating *B. anthracis* Delta Sterne and *B. thuringiensis* Al Hakam spores with similar kinetics on aircraft-relevant materials.

Modeling & Simulation
JSTO-CBD developed a modeling and simulation tool to represent selected aspects of the CB protective performance of the JECP family of shelters. Development continued of chapters on Threat Data and Agent Properties, Human Effects, and Protective Equipment for the Chemical and Biological Effects Manual and started new chapters on Medical Diagnostics, Medical Protection, Human Factors, Meteorological and Environmental Data, and Geographic Data.

Analysis Support
The Analysis Support Program developed a preliminary CBDP risk assessment framework and implementation process intended to enable Enterprise-wide, risk-based planning and decision making.

Techbase Technology Transition
The Hazard Mitigation Materiel and Equipment Restoration ATD validated military utility of mobile and stationary suites for operational decontamination, to include decontamination indicator sprays and strippable coatings. JSTO-CBD continued its partnership with Poland on the Trans-Atlantic Collaborative Biological Resiliency Demonstration to collaborate in developing a capability to respond to a wide-area

biological incident. The Rapid Area Sensitive-Site Reconnaissance ATD continued to demonstrate a capability to survey sensitive sites rapidly to determine the presence of NTAs, TICs, or CWAs through extended user evaluation of the developed system.

Enterprise Advancements in Materiel Development

Detection
The CBRN Dismounted Reconnaissance Sets, Kits, and Outfits (DR SKO) program had approved entry into Low-Rate Initial Production. A Multi-Service Operational Test was conducted in September 2013 to determine the Operational Effectiveness, Suitability, and Survivability of the CBRN DR SKO in support of a March 2014 Full Rate Production Decision Review.

JPEO-CBD completed fielding of the final 21 M31A2 Biological Integrated Detection System to a U.S. Army Reserve Chemical Unit in Washington State and continued fielding Joint Chemical Agent Detector M4A1 systems to U.S. Army and NGB units.

The JPEO-CBD successfully installed the first Improved Point Detection System-Life Cycle Replacement (IPDS-LR) system on a U.S. Coast Guard National Security Class ship. Initial Operating Capability (IOC) for the U.S. Navy (30 systems) for IPDS-LR was achieved in May 2013.

Protection
The UIPE Increment 1 program entered into the Production and Deployment phase of the Defense Acquisition System, with several industry candidates (performers) participating.

The JPEO-CBD completed fielding of the M50 Joint Service General Purpose Mask to the U.S. Navy and initiated fielding to the U.S. Army.

The JECP program entered into the Production and Deployment phase of the Defense Acquisition System.

The Collectively Protected Field Hospital program had a successful Follow-on Operational Test of the U.S. Navy Chemically Hardened Expeditionary Medical Facility (CH EMF). The U.S. Army Medical Department Board assessed the CH EMF as operationally effective and operationally suitable and recommended fielding of the system.

Hazard Mitigation
The Contaminated Human Remains Pouch (CHRP) program entered into the Engineering and Manufacturing Development phase of the Defense Acquisition System.

Contracts were awarded for Phase II competitive prototyping for the Joint Service Equipment Wipe and General Purpose Decontaminant(s) programs. JPEO-CBD also awarded a contract for technology demonstrations within the Contamination Indicator Decontamination Assurance System Program.

The M26 Joint Service Transportable Decontamination System-Small Scale program completed fielding of its last two systems to military units in September 2013.

Homeland and Installation Defense for CBRN Response
Rapid acquisition, equipping, training, and fielding were provided to U.S. Northern Command (USNORTHCOM) Defense Chemical, Biological, Radiological, Nuclear, and (High-Yield) Explosive (CBRNE) Response Force (DCRF) units. JPEO-CBD developed a unique approach for rapid acquisition capabilities in order to equip and train the DCRF and Command and Control CBRN Response Elements with unique DoD assets that provide life-saving proficiencies for CBRN response operations in support of civil authorities.

Under its COTS equipment modernization program, the JPEO-CBD provided rapid acquisition, equipping, training, and fielding to the NGB WMD-CSTs, U.S. Marine Corps (USMC) Chemical Biological Incident Response Force, and the 20th Support Command CBRNE Nuclear Disablement Teams to close capability gaps within Chemical Point Detection, Respiratory and Ocular Protection, and Percutaneous Protection.

Information Systems
Two Joint Effects Model (JEM) Increment 2 competitive prototyping contracts were awarded.

An Operational Assessment was successfully conducted for the JPEO-CBD's Joint Warning and Reporting Network (JWARN) Web Application Version 1.0.4 Patch 1 (V1.0.4P1). The U.S. Army Operational Test Command and the U.S. Army Test and Evaluation Command conducted this assessment, which effectively verified the JWARN Web Application readiness for participation in follow-on testing during an U.S. Army Network Integration Evaluation event.

JPEO-CBD successfully completed the Foreign Military Sales process to provide JEM to Canada. The Canadian Government accepted and signed the Letter of Offer & Acceptance for the purchase of JEM and associated acquisition and logistical support.

Fielded Quantities and Capabilities

The 1,036,430 systems, products, and vaccine doses provided by the JPEO-CBD to provide capability during FY 2013 are listed in Enclosure B.[3]

CBDP Support to Special Operations

Throughout FY 2013, the U.S. Special Operations Command's (USSOCOM) participation and place within the Joint CBDP Enterprise continues to fuse USSOCOM acquisition efforts within the Joint CBDP community. USSOCOM provides input to the Joint CBDP for requirements which feed the Joint Priority List, Biosurveillance efforts, NTA Deep Dives, and all relevant studies initiated and managed by the JRO-CBRND. Conversely, the Joint CBDP supports USSOCOM in fulfilling its title X, section 167 Service-like requirements. In most cases, USSOCOM requirements are included into Service numbers for IOC and Full Operating Capability fielding schedules. USSOCOM Special Operations Force-unique requirements resulted in the UIPE Increment 1, which was given the program name "Lightweight Chemical Biological Protective Garment (LCBPG)."

[3] Title 50 U.S. Code Section 1523, (b) 1: The quantities, characteristics, and capabilities of fielded chemical and biological defense equipment to meet wartime and peacetime requirements for support of the Armed Forces, including individual protective items.

Industrial Base

The JPEO-CBD's Joint Logistics Advisory Council for Chemical and Biological Defense Industrial Base Working Group's (IBWG) core assessment areas included CBDP items, Organic Industrial Base, and Critical CBRN Manufacturers. The IBWG executed several key initiatives during FY 2013, to include:

- Standardized Industrial Base (IB) inputs into the JPEO-CBD's Joint Life Cycle Management Review
- Identification of critical IB manufacturers in preparation for FY 2014's "What If" Assessment Project
- Provided acquisition strategy support to the CHRP, JECP, and COTS Decontamination programs
- Defense Production Act Title III Calgon Carbon Corporation Project[4]

Testing and Evaluation

The Test and Evaluation (T&E) Capabilities and Methodologies Integrated Process Team (TECMIPT) received approval on eleven T&E standards documents during FY 2013. The Biosurveillance Capability Area Process Action Team, a sub-group of TECMIPT, was designated to support the White House National Science and Technology Council Subcommittee on Standards CBRNE in lieu of creating a new working group for that effort. The TECMIPT advanced to the next level of T&E standardization, the development of an Interagency Characterization and Assessment Program, to provide a database of COTS products that have been formally characterized as to their performance/capabilities. The pilot program is being coordinated with the Domestic Nuclear Detection Office, JPEO-CBD, and JPM-Radiological/Nuclear (provisional) to support the Radiological Detection programs.

The Joint Threat Coordination Group (JTCG), co-chaired by the Deputy Under Secretary of the Army for Test and Evaluation (DUSA-TE) and JRO-CBRND, expanded their efforts to better support program development and testing. In coordination with the intelligence community, an update to the Capstone Threat Assessment document was completed documenting emerging threats, which in turn will better inform the acquisition process. Additionally, the JTCG coordinated with National Ground Intelligence Center source characterization improvement efforts to capitalize on modeling and simulation to enhance threat characterization to provide a more realistic threat representation for program evaluation efforts.

International efforts in FY 2013 included initiating bi-lateral collaboration with France on CBDP-related T&E efforts. France hosted a workshop in February 2013 which focused on CBDP T&E standards and test procedures, specifically in the areas of mask filter and full system testing and bio-detection. The MOU Concerning the Research, Development, and Acquisition of CBR Defense Materiel Among the Australian Department of Defence, the Canadian Department of National Defence, the United Kingdom Ministry of Defence, and the United States DoD (CBR MOU) Test, Evaluation, and Simulation Working Group was disbanded, and T&E representatives from the member countries were incorporated into each of the four new commodity area working groups.

[4] Title 50 U.S. Code Section 1523, (b) 2: The status of research and development programs, and acquisition programs, for required improvements in chemical and biological defense equipment and medical treatment, including an assessment of the ability of the Department of Defense and the industrial base to meet those requirements.

The DUSA-TE assisted in assessment of the BSP IOC during AR 13. The BSP dovetailed into exercise injects that drove AR 13, providing the backup information on patient symptoms, doctor/hospital admissions records, and other exercise information and downwind plume charts.

The field T&E assessment plan was completed by DUSA-TE to determine actual utilization of fielded CBRN equipment by field units and inform T&E process improvements.

The DUSA-TE also initiated a CBDP Enterprise effort to update, improve, and formally document its T&E Infrastructure Analysis and Decision Process to ensure cost-effective and affordable T&E infrastructure planning, development, and sustainment.

No individuals have been used as subjects of any CB agent tests in the U.S. since 1975. Human biological agent testing ended on November 25, 1969, and human chemical agent testing ended on July 25, 1975. DoD continues to work with the Department of Veterans Affairs to identify and locate previous human test subjects so they can receive appropriate attention. To provide the public with the information on human exposures related to historic CB testing, the OASD(HA) maintains CB exposure databases and updates the CB Warfare Exposures website: (http://fhp.osd.mil/CBexposures).[5]

Policy, Training, and Education

The CBDP continued to develop and integrate Joint CBRN defense capabilities in support of the national military strategies. Enclosure E lists the Combating Weapons of Mass Destruction (CWMD), CBRN Responder, and medical personnel training and education courses in compliance with section 1523.[6]

Policy

The CBDP continued updating DoD CB security policies, including the areas of NTA security policy, optimized security and oversight, harmonized procedures and language, improved internal and external collaboration, cost efficiencies, compliant labs/facilities, and inspections to standards.

The Deputy Assistant Secretary of Defense for Chemical and Biological Defense published "Incorporation of Health-Based Criteria into Chemical, Biological, Radiological, and Nuclear Defense Plans, Policies, and Acquisition Programs" on June 29, 2013.

The JRO-CBRND conducted experiments and studies in support of Joint CBRN defense operational requirements, listed in Enclosure D[7], and led an Enterprise-wide effort which reviewed and revised the list of CBRN Defense core capabilities from 29 to 18, receiving Service and JROC endorsement. [8]

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[5] Title 50 U.S. Code Section 1523, (b) 9: A description of any program involving the testing of biological or chemical agents on human subjects that was carried out by the Department of Defense during the period covered by the report.

[6] Title 50 U.S. Code Section 1523, (b) 4: The status of nuclear, biological, and chemical (NBC) warfare defense training and readiness among the Armed Forces and measures being taken to include realistic nuclear, biological, and chemical warfare simulations in war games, battle simulations, and training exercises.

[7] Title 50 U.S. Code Section 1523, (a) 2: Requirements for the chemical and biological warfare defense program, including requirements for training, detection, and protective equipment, for medical prophylaxis, and for treatment of casualties resulting from use of chemical or biological weapons.

[8] Title 50 U.S. Code Section 1523, (b) 3: Measures taken to ensure the integration of requirements for chemical and biological defense equipment and material among the Armed Forces.

The JRO-CBRND completed capability requirement documents for JECP, LCBPG, Joint Service Aircrew Mask-Tactical Aircraft, DR SKO, AAS, and EID therapeutic programs. JRO-CBRND also concluded AoAs for JWARN Sensor Connectivity Capability, Contamination Mitigation (Coatings), UIPE, and Next Generation Chemical Detection Programs.

The JRO-CBRND provided input into more than 20 Joint Publications (JP) and supported revisions of JPs 3-27, *Homeland Defense*; 3-28, *Defense Support of Civil Authorities*; 3-29, *Foreign Humanitarian Assistance*; and 3-40, *Combating Weapons of Mass Destruction*.

Oversight was provided by JRO-CBRND in the revision of numerous Multi-Service Tactics, Techniques, and Procedures (MTTP) during FY 2013, including *MTTP for Treatment of Nuclear and Radiological Casualties*, *MTTP for Treatment of Chemical Agent Casualties and Conventional Military Injuries,* and *MTTP for Potential Military Chemical/Biological Agents and Compounds.* The development of the *MTTP for CBRN Passive Defense* will revise and combine the content of three MTTPs: *MTTP for CBRN Contamination Avoidance, MTTP for NBC Protection,* and *MTTP for CBRN Decontamination*.

The Joint Staff J-5, in conjunction with U.S. Strategic Command (USSTRATCOM), revised and published an updated edition of JP 3-41, *Chemical, Biological, Radiological and Nuclear Consequence Management*. USSTRATCOM also established the Standing Joint Force Headquarters for Elimination to provide planning, intelligence, and operational capability for combating and eliminating WMD. The Joint Staff J-5 published Chairman of the Joint Chiefs of Staff Instruction 5113.03, "Counterproliferation Interdiction Policy," to set policy and provide operational guidance for the planning and execution of U.S. military support for Counterproliferation Interdiction operations. As the global synchronizer for CWMD, USSTRATCOM released the revised *Global Campaign Plan for Combating WMD* to synchronize planning for DoD CWMD efforts in coordination with other Combatant Commands (CCMD), the Services, and as directed, appropriate U.S. Government agencies.

Training and Education

Outside of the Continental United States

The CBDP provided leadership and oversight within the CBRN Enterprise and USFK for the planning and execution of AR 13, an annual combined ROK-U.S. Joint and interagency exercise that applies a Whole of Government approach to strengthen the ROK-U.S. capability to prepare for and respond to a naturally occurring or intentional biological incident on the Korean peninsula. AR 13 was a modified functional exercise that focused more on actual response actions, highlighted the continued improvement of the ROK and U.S. preparedness for a biological incident, and brought the ROK and U.S. Government Alliance closer to an integrated biosurveillance and response capability on the Peninsula.

In addition, AR 13 was the first time that the BSP platform was introduced into the role playing. AR 13 provided an opportunity to exercise each nation's biosurveillance capabilities and successfully demonstrated the critical utility of a BSP capability.

Exercise AR 13 demonstrated significant progress since the first iteration in 2011. It has become the benchmark for exploring multilateral bioresponse capabilities and is a model for collaboration between the civilian public health sector and the armed forces.

Within the Continental United States
U.S. Army CBRN School (USACBRNS)
The Maneuver Support Center of Excellence, located at Fort Leonard Wood (FLW), MO, serves as the center for co-located Service CBRN specialist training including the Army, USMC, Navy, and U.S. Air Force. In FY 2013, USACBRNS initiatives included:

- Development and execution of the multi-Service Basic Warrant Officer Course with the U.S. Army and USMC
- Development and execution of the Joint Senior Leader Course
- Planning of the Joint CBRN Training and Education Complex
- Continued investigation of various multi-Service opportunities to train Joint Forces in support of CWMD activities.

Toxic agent training is mandatory for all CBRN specialist initial entry and professional courses and is conducted at the Chemical Defense Training Facility, which trained more than 5,000 U.S. Service members and international students during FY 2013.

United States Army Medical Research and Materiel Command (USAMRMC)
The USAMRMC trained more than 1,100 students in an accredited course in Medical Management of CB Casualties (MCBC) at the U.S. Army Medical Research Institute of Chemical Defense (USAMRICD) and the U.S. Army Medical Research Institute for Infectious Diseases (USAMRIID).

OASD(HA)
The OASD(HA) conducted Field Management of Chemical and Biological Casualties, Medical Management of Chemical and Biological Casualties, and Hospital Management of CBRNE Casualties classes.

JRO-CBRND
The JRO-CBRND conducted 69 CWMD/CBRN educational courses for 3,263 students, highlighted by the presentation of the Joint Senior Leaders' Course. JRO-CBRND supported Joint Professional Military Education and training at several military educational institutions, including the Eisenhower School, the Service and National War Colleges, Joint Special Operations University, Joint and Combined Warfighting School, and Joint Forces Staff College.

The JRO-CBRND supported U.S. Army North exercise VIBRANT RESPONSE 13-2 and exercises AR 13, ARDENT SENTRY, VIGILANT SHIELD, TALISMAN SABER, ULCHI FREEDOM GUARDIAN, KEY RESOLVE, REGIONAL COOPERATION, USSOCOM CBRN TABLE TOP EXERCISE, GLOBAL THUNDER, and SUDDEN RESPONSE.

JRO-CBRND obtained authority to grant Defense Support to Civil Authorities Level II certificates to all personnel completing the Career Course Consequence Management Modules at Captain-level career courses at the U.S. Army Engineer School, Military Police School, and CBRN School. JRO-CBRND's official review of these courses resulted in their being certified as Joint courses, and they have been awarded Joint Qualified Officer education points.

Edgewood Chemical Biological Center (ECBC)
ECBC trained 273 students in CBRN defense courses, including the CB Basic course for the 20th Support Command (Aberdeen Proving Ground, MD); the ECBC CBRN Course for WMD-CSTs, the CB CBRNE Response Team (CRT) Course (22nd Chemical Battalion, Aberdeen Proving Ground, MD and 110th Chemical Battalion, Fort Lewis, WA); and the Target Recognition Small Scale Production Course (110th Chemical Battalion).

CBDP and National Defense University (NDU) Center for the Study of Weapons of Mass Destruction (CSWMD)
The CBDP Graduate Fellowship Program in CWMD consisted of a cohort of 17 DoD civilian and military students.

Emerging Leaders in Biosecurity Initiative (ELBI)
The ELBI provided young professionals seeking careers in biosecurity with opportunities to interact with peers and current leaders in the field, and to advance their knowledge of key biosecurity issues and contribute ideas to policy and scientific discussions.

U.S. Army
The U.S. Army continues to leverage key facilities such as the West Desert Test Center and Center for National Response, in Standard, WV, as well as the Terry Center, the Army's flagship facility at FLW, and the Muscatatuck Urban Training Center, in Butlerville, IN. Additionally, the U.S. Army 20th Support Command CBRNE completed multiple domestic and international training exercise events, including VIBRANT RESPONSE 13-2, where the DCRF unit executed Defense Support of Civil Authorities missions.

U.S. Air Force
The U.S. Air Force continues to assess its CBRN defense requirements and develop more effective ways to employ equipment and CBRN specialists, such as Emergency Management and Bioenvironmental Engineer personnel, to accomplish chemical detection in the aftermath of attacks. Through its relationship with USACBRNS, the U.S. Air Force trained 461 personnel in Emergency Management courses and 19 personnel in a Readiness Flight Officer course. Through its relationship with JRO-CBRND, the U.S. Air Force participated in the U.S. Army and U.S. Air Force Command and Staff Colleges Joint Interagency Planning Staff Exercise, trained 245 personnel in the Air War College Global Challenge Exercise, and trained 75 personnel in the U.S. Air Force Command and Staff College Joint Interagency Planning Staff Exercise Prep.

U.S. Navy
The U.S. Navy revised and approved Office of the Chief of Naval Operations Instruction 3401.3B, *Nuclear Survivability Policy for Navy and Marine Corps Systems*, which establishes policy and assigns responsibility for implementing nuclear survivability into U.S. Navy and USMC systems and platforms. The U.S. Navy also updated the Naval Ships' Technical Manual (NSTM) 070, for Nuclear and Radiological Defensive Measures, and NSTM 470, for CB Defensive Measures.

U.S. Marine Corps
The USMC incorporated CBRN awareness and understanding into training and readiness manuals at all levels of training and operational planning and trained Marines using the individual training standards outlined in the Marine Corps Common Skills manuals and Marine Corps Order 3400.3G, *CBRN Defense Training Requirements*. The USMC CBRN School at Ft. Leonard Wood led the consolidation of the

Interservice Training Review Organization (ITRO) CBRN Warrant Officer Basic Course with USMC and U.S. Army CBRN Warrant Officers. The USMC and U.S. Army conducted another ITRO study for an advanced Chief Warrant Officer course with USACBRNS as the lead. In conjunction with CBRN training, all Marines completed an Individual Protective Equipment confidence exercise as well as collective CBRN training during exercises and pre-deployment training. The USMC concluded a CWMD Capabilities Based Assessment (CBA) and combined the results with their CWMD Operational Concept and Marine Air Ground Task Force (MAGTF) CBRN Operating Concept into Marine Corps Warfighting Publication (MCWP) 3-37, *CBRN Support to CWMD Operations*. As a result of the CWMD Operational Concept and CWMD CBA, the USMC updated the MCWP 3-37, *Marine Air Ground Task Force (MAGTF) CBRN Support for CWMD Objectives*, providing tactical-level solutions to strengthen its ability to conduct and support CWMD operations. The USMC participated in international exercises in order to improve CBRN interoperability during Coalition operations.

Chemical Weapons Convention and Inspection Readiness

Organisation for the Prohibition of Chemical Weapons (OPCW)
The DoD hosted six inspections and visits at chemical weapons (CW) storage, destruction, and Schedule 1 chemical production facilities. DoD also supported the OPCW mission to destroy chemical weapons in Syria through provision of protective MCMs packaged in autoinjectors.

The United States safely destroyed 89.75 percent of its chemical agent and more than 2.33 million munitions and containers. Pueblo, CO, completed construction in FY 2013 and is scheduled to begin destruction operations in 2015. Blue Grass, KY, completed more than 71 percent of construction and is scheduled to commence destruction operations in 2020.

ECBC's Chemical and Biological Forensic Analytical Center participated in and scored an "A" on the 33rd OPCW Proficiency Test, with no false positives/false negatives in the identification of seven reportable compounds in four samples reflecting potential Chemical Warfare Convention (CWC) challenge inspection scenarios.

The DoD submitted its portion of Biological Warfare Convention Confidence Building Measures, which are required by U.S. policy in accordance with agreements made at Biological Warfare Convention Review Conferences. Additionally, DoD performed its annual review of all biodefense research funded and conducted by DoD to monitor internally for compliance.

Preparation of Defense Installations
The DoD, Military Departments/Services, and Components developed individual CWC implementation and compliance plans to provide guidance for their commands and activities. The Services individually established implementation support offices, which actively participate at the DoD Chemical Weapons Implementation Working Group, provide Service policy direction, and liaise with their major commands to ensure that all military elements are fully prepared for inspections under the CWC.

All Services held exercises to test their preparedness for short-notice CWC challenge inspections. The DoD and the Services exercised written DoD guidance, a draft Joint Concept Plan, and procedures to test the operational readiness of personnel and facilities. The Services initiated efforts to ensure that in the

case of a challenge inspection, affected commands take timely and appropriate measures, based on lessons learned, to demonstrate compliance while protecting security concerns.[9]

Technical Equipment Inspection Program
To carry out its CWC verification activities, the OPCW Technical Secretariat (TS) purchases, maintains, and transports their inspection equipment. The Technical Equipment Inspection Program (TEI) ensures that OPCW TS verification equipment meets U.S. safety, environmental, and security requirements through a familiarization process authorized by the OPCW Conference of the States Parties. Familiarization results are documented in the U.S. Certification Report of CWC OPCW TS Equipment. The TEI verifies OPCW equipment entering and exiting the United States in accordance with (IAW) the U.S. Certification Report. In addition, the TEI performs chemical agent monitoring of inbound equipment for all inspection teams at the point of entry to protect U.S. and OPCW personnel and prevent inaccurate findings resulting from preexisting contaminants on the OPCW verification equipment.

Article X Assistance and Other Assistance
IAW a condition established in the U.S. Senate's Advice and Consent to the Ratification of the CWC, the United States will provide "no assistance...other than medical antidotes and treatment" to those countries deemed ineligible to receive full Article X assistance under the Foreign Assistance Act of 1961.

Under the CWC, the DoD has provided neither CW detection equipment nor assistance in the transportation, storage, and destruction of CW to other State Parties, except that which has been provided to Russia, Albania, and Libya under the DoD's Cooperative Threat Reduction Program.[10]

Defense Advanced Research Projects Agency Coordination

The Defense Advanced Research Projects Agency (DARPA) and JSTO-CBD collaborated in a partnership to support cloud-based testing and simulation for the DARPA Robotics Challenge and the Human Capabilities Projection effort, paper-based diagnostics, and improved diagnostic reagent robustness for use in austere environments. The Modular Immune *in vitro* Construct technology, an early vaccine candidate assessment from the DARPA Rapid Vaccine Assessment program, was transitioned to both JSTO-CBD and JPEO-CBD for validation.

DARPA also provided programmatic updates, presentations, or technical expertise in the areas of threat reduction, biodefense, diagnostics, viral forecasting, and biosurveillance and regulatory reviews, such as the National Academy of Sciences Committee on the DoD's Programs to Counter Biological Threats; the 2013 FDA MCM Initiative Regulatory Science Symposium, USAMRIID; and the JASON Study with the U.S. Federal Bureau of Investigation. The CBDP Enterprise collaborated with DARPA on innovative diagnostic

[9] Title 50 U.S. Code Section 1523, (b) 8: A summary of other preparations undertaken by the Department of Defense and the On-Site Inspection Agency to prepare for and to assist in the implementation of the convention, including activities such as training for inspectors, preparation of defense installations for inspections under the convention using the Defense Treaty Inspection Readiness Program, provision of chemical weapons detection equipment, and assistance in the safe transportation, storage, and destruction of chemical weapons in other signatory nations to the convention.
[10] Title 50 U.S. Code Section 1523, (b) 7: A description of the chemical warfare defense preparations that have been and are being undertaken by the Department of Defense to address needs which may arise under article X of the Chemical Weapons Convention.

sample collection, preservation, and analysis technologies to mature these technologies to address specific Warfighter needs.[11]

CBDP Interagency and International Activities

Interagency Collaboration

DoD-U.S. Department of Health and Human Services (HHS)

The CBDP participated on behalf of the DoD as a key interagency partner in the HHS led Public Health Emergency Medical Countermeasures Enterprise (PHEMCE), whose mission is to advance national preparedness for natural, accidental, and intentional threats by coordinating medical countermeasure-related efforts within the interagency. Through ongoing oversight activities of the PHEMCE, CBDP participated in the coordination of early stage research, advanced development and manufacturing, procurement, inventory management, and stockpiling as well as response planning, policy, guidance, and communication. CBDP, as a co-chair with HHS on the Portfolio Advisory Committee, examined medical countermeasures portfolios across the interagency and explored avenues for stronger collaborations. CBDP collaborated with HHS to develop medical countermeasures against radiological and nuclear threats designed to address both military and civilian needs. CBDP and HHS began discussions on co-development of a novel antimicrobial agent. In addition, CBDP participated on the Executive Steering Committee for HHS' Centers for Innovation in Advanced Development and Manufacturing. Active participation on the PHEMCE has enabled CBDP to capitalize on and leverage on-going efforts within other agencies and departments thus providing guidelines that support the delivery of medical countermeasures using a whole-of-government approach.

DoD-Department of Homeland Security (DHS)

The CBDP primarily works with the DHS through the Tri-Agency MOU with the Environmental Protection Agency. Activities under the Tri-Agency MOU seek to leverage existing CB defense programs within these respective agencies. Activities are aligned under five sub-working groups: Biological Detection & Biosurveillance; Biological Response and Remediation; Emerging Chemical Threats; Systems Modeling and Risk Assessments; and T&E.

DoD-U.S. Centers for Disease Control and Prevention (CDC)

CBDP's partnership with the CDC focuses on global health security, biosurveillance, diagnostics, and personnel exchanges. Key topics include: the Laboratory Response Network (LRN) in the ROK; international engagements with the WHO and Georgia; the proposed personnel exchange for an AAAS Global Health Security Fellow; and sample sharing. There is additional proposed collaboration focused on POC and PON diagnostic devices that link to a cloud for real-time biosurveillance.

International Collaboration

CBDP international efforts included strengthening current partnerships with the United Kingdom, Canada, Australia, France, ROK, and Israel; increasing engagement and/or building new partnerships with India, Poland, the Czech Republic, Singapore, and Japan; continuing multilateral engagement through the CBR MOU, the Technical Cooperation Program Chemical-Biological Defense Group (TTCP-

[11] Title 50 U.S. Code Section 1523, (b) 10: A description of the coordination and integration of the program of the Defense Advanced Research Projects Agency (DARPA) on basic and applied research and advanced technology development on chemical and biological warfare defense technologies and systems under section 1701(C)(2) with the overall program of the Department of Defense on chemical and biological warfare defense.

CBD), and the North Atlantic Treaty Organization, maintaining burden-sharing activities, and leveraging multiple national programs; and developing and approving new CB defense international agreements, including Information Exchange Agreements and Project Agreements with partners.

CBR MOU
In October 2012, the CBR MOU and the TTCP-CBD received collective, Assistant Secretary-level endorsement to transition, or "merge," to a single outcome-oriented collaborative model, now called the "The CBR Enterprise."

The CBR MOU and TTCP-CBD merged for three reasons: 1) to reduce duplicative organizational management and oversight; 2) to improve cost effectiveness (both in terms of governance and programmatic development and execution); and 3) to ensure that work together translates into budgeted programs and truly yield shared capabilities in support of the Nation and the Warfighter.

Path Forward

The Department's efforts to defend against CBRN threats will strengthen as the CBDP continues to prioritize increasing requirements to counter WMD threats; address numerous national, Departmental, Service, and CCMD priorities; and allocate available resources to balance modernization goals and objectives. This prioritization will facilitate continued delivery of militarily significant, multi-purpose capabilities that will enable prevention, protection, mitigation, response, and recovery from CBRN attacks in defense of the Warfighter and the nation.

To better integrate, align, and focus Enterprise initiatives in the future, the CBDP again conducted a Strategic Portfolio Review (SPR) to assess how appropriately the CBDP's investments provide the Warfighter with needed capabilities and how efficiently the CBDP is managing its business processes and maintaining its critical infrastructure. The SPR panel noted several recommendations for areas in which the CBDP can make improvements, including [12, 13]:

- In light of diminishing resources, the CBDP will review business processes for additional efficiencies. The Office of the Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs/Chemical and Biological Defense (OASD(NCB/CB)) will lead a review of the *CBDP Business Plan* to ensure that processes are efficient and effective. As part of this effort, the Planning Working Integrated Product Team (WIPT) will conduct a holistic review of CBDP planning documents to ensure that documents are not duplicative.
- The CBDP will develop means to assess education, training, and exercise investments. The Joint CBRN Defense Program Analysis and Integration Office will incorporate measures and metrics for the assessment of these investments into the CBDP Enterprise Strategic Measures and Metrics effort.
- The CBDP will consider re-establishing the Joint Combat Developer as the Center responsible for training to enhance integration of materiel and non-materiel solutions.

[12] Title 50 U.S. Code Section 1523, (b) 6: Problems encountered in the chemical and biological warfare defense program during the past year and recommended solutions to those problems for which additional resources or actions by the Congress are required.
[13] Title 50 U.S. Code Section 1523, (b) 5: Measures taken to improve overall management and coordination of the chemical and biological defense program.

- The OASD(NCB/CB) will assess the roles and responsibilities of the JRO-CBRND and other CBDP Component organizations, and roles and responsibilities will be realigned as appropriate.
- The Senior Scientist WIPT will identify and provide core CBDP S&T/T&E capabilities and competencies to the Infrastructure Manager, who will lead a CBDP-wide infrastructure assessment in time to inform the POM Working Group.
- The CBDP will continue the initial progress made by the Risk Assessment WIPT and will refine the WIPT's risk assessment framework to ensure that various levels of risk are addressed (e.g., strategic, operational, tactical, etc.). The CBDP will also develop an integrated strategy to address surprise that includes proactive engagements with other communities/agencies.

The DoD will continue to invest in CBRN defense efforts to define and develop transformational capabilities, provide operational capabilities to the Joint Force, sustain the Force to operate jointly and effectively, and improve management practices to fulfill Enterprise strategic roles and missions. The CBDP's FY 2013 accomplishments prepared the Warfighter and the nation to deter, prevent, protect, mitigate, respond, and recover from CBRN threats and effects as part of an end-to-end, layered, integrated defense.

ENCLOSURE A: CBDP ENTERPRISE STAKEHOLDERS

- Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs (ASD(NCB))
- Deputy Assistant Secretary of Defense for Chemical and Biological Defense (DASD(CBD))
- Joint Requirements Office for Chemical and Biological Defense (JRO-CBRND)
- Defense Threat Reduction Agency (DTRA) Joint Science and Technology Office for Chemical and Biological Defense (JSTO-CBD)
- Joint Program Executive Office for Chemical and Biological Defense (JPEO-CBD)
- Office of the CBRN Defense Test and Evaluation (T&E) Executive
- Joint CBRN Defense Program Analysis and Integration Office (PAIO)
- U.S. Military Services
- Combatant Commands (CCMD)
- Joint Staff
- Office of the Secretary of Defense Staff
- Other DoD agencies

ENCLOSURE B: FY 2013 CBDP FIELDING QUANTITIES

JPM	Product	USA	USAF	USN	USMC	USCG	Total
CA	DRC - Lite	29					**29**
	DRC - Heavy	11					**11**
	FOX M93A1	6					**6**
	IPDS-LR			17			**17**
	LVOSS M327	1317					**1317**
	LVOSS M7	1103					**1103**
	JCAD M4A1	6039					**6039**
	M31A2 BIDS	21					**21**
	M58	56					**56**
	M98 JBPDS			8			**8**
	NBCRV VCT	5					**5**
P	JB1GU FR			2501			**2501**
	JSAM Apache	324					**324**
	JSGPM	187090		164002			**351092**
	M26	375		14		2	**391**
Sub-Total		**196376**	**0**	**166542**	**0**	**2**	**362920**
Medical Systems Acquired from the Strategic National Stockpile							
CBMS	AVA	260960	53430	63780	55640	3300	**437110**
	SMALLPOX	116000	63100	27100	28300	1900	**236400**
Sub-Total		**376960**	**116530**	**90880**	**83940**	**5200**	**673510**
Grand Total		**573336**	**116530**	**257422**	**83940**	**5202**	**1036430**

ENCLOSURE C: FY 2013 CBDP ACQUISITION PROGRAM DESCRIPTIONS

Advanced Anticonvulsant System (AAS)
AAS consists of the drug midazolam in an autoinjector, to be used as a treatment for nerve agent-induced seizures. Midazolam is more water-soluble than diazepam (the currently fielded medication to control nerve agent-induced seizures) and terminates nerve agent-induced seizures more quickly than diazepam. AAS will not eliminate the need for other protective and therapeutic systems.

Biosurveillance
The JPEO-CBD is developing the Biosurveillance program, which will deliver a set of capabilities to acquire, integrate, and analyze clinical, environmental, and incident management data using existing and next generation systems, medical and non-medical sample collection tools, and devices explored in the Joint U.S. Forces Korea Portal and Integrated Threat Recognition Advanced Technology Demonstration.

Common Analytical Laboratory System (CALS)
CALS is an integrated suite providing the capability for field confirmatory and/or theater validation analytics to detect and identify chemical, biological, radiological, nuclear, and (high-yield) explosive agents and threats; assist field commanders in making risk management decisions about force or public protection measures to minimize the effects of the threat; operate globally with qualified personnel and procedures and adequate sustainment trail to support the mission; and accept and prepare samples and analyze and report findings while safely handling and tracking materials. CALS will follow an incremental approach leveraging COTS/Government off-the-shelf solutions designed to address known Joint Force capability requirements for CBRN field confirmatory and theatre validation analysis.

Centrally Acting Nerve Agent Treatment System (CANATS)
CANATS will be a new post-exposure therapeutic drug which will serve as adjunct therapy to increase the efficacy of other therapeutic compounds. This capability may be, but is not limited to, a cholinesterase reactivator, reversible cholinesterase inhibitor, or an anticholinergic compound.

Contaminated Human Remains Pouch (CHRP)
The CHRP is a recovery and containment system which will protect personnel from the hazards associated with handling human remains that are potentially contaminated with CBRN agents and Toxic Industrial Materials (TIM) without posing additional risk to the handlers or the environment. The CHRP will contain contaminated human remains from the point of fatality to the Mortuary Affairs activity.

Contamination Indicator Decontamination Assurance System (CIDAS)
CIDAS will provide a contamination indication/decontamination assurance technology and applicator(s) for visually indicating traditional nerve and blister CWAs and NTAs on tactical vehicles and aircraft exposed to chemical contamination in hostile and non-hostile environments.

General Purpose Decontaminant (GPD)
GPD will provide thorough decontamination capabilities for tactical vehicles, shipboard surfaces, crew-served weapons, and individual weapons exposed to CB contamination in hostile and non-hostile environments.

Joint Biological Agent Decontamination System (JBAD)
JBAD will provide thorough biological decontamination of the interior and exterior of tactical and cargo aircraft. JBAD is a capability set that will include a shelter to encapsulate an airframe, a decontamination delivery system (e.g., hot-humid air-blower, etc.), environmental control and monitoring system(s), and other ancillary components required to ensure efficacious biological agent decontamination. It will provide the capability to decontaminate biologically contaminated airframes to safe levels and allow more rapid return to service.

Joint Biological Tactical Detection System (JBTDS) Increment 1
The JBTDS will integrate, test, and produce the first lightweight (less than 37 lbs.), low-cost biological surveillance system that will detect, collect, and identify BWA aerosols. System components will be man-portable, battery-operable, and easy to employ. When networked, JBTDS will augment existing biological detection systems to provide a theater-wide, seamless array capable of biological detection, identification, and warning. Units equipped with JBTDS will conduct biological surveillance missions to detect BWA aerosol clouds, collect a sample, and identify the agent to support time-sensitive force protection decisions.

Joint Expeditionary Collective Protection (JECP)
The JECP FoS will provide modular, transportable, and versatile collective protection capabilities against CBR contaminants for rest and relief and Command and Control.

Joint Effects Model (JEM) Increment 2
JEM Increment 2 acquisition will utilize the JROC's "IT Box" construct for software development. The intent is to provide the next generation of capability with current and future technologies, as stated in the Information Systems Initial Capabilities Document, in less time and away from an incremental delivery approach. Once fielded, JEM will be the standardized DoD CBRN/TIC/TIM hazard prediction model, or "Decision Aide." JEM will be capable of modeling hazards in a variety of scenarios including: counterforce, passive defense, accident and/or incidents (Increment 1); high altitude releases; urban, coastal, and littoral environments; estimate the source of a hazard; and increase hazard prediction accuracy by 10% (Increment 2); and building interiors, human performance degradation, waterborne hazards, effects on aircraft at altitude and ships underway, and contagious disease modeling (Increment 3).

Joint Sensitive Equipment Wipe (JSEW)
JSEW is a decontamination wipe that will provide immediate/operational decontamination capabilities for sensitive and non-sensitive equipment in hostile and non-hostile environments that have been exposed to chemical agents/contamination. The JSEW shall decontaminate Nerve and Blister agents and is intended to be a replacement for the Individual Equipment Decontamination Kit (M295). JSEW will also investigate the potential for NTA compatibility of JSEW prototype.

Joint Service General Purpose Mask (JSGPM)
The M50/M51 JSGPM, in Production and Fielding, is a lightweight protective mask system with CBR protection, lower breathing resistance, and reduced bulk/weight. It will replace the M40/M42 and M45 Land Warrior version.

Joint Warning and Reporting Network (JWARN) Increment 2
JWARN Increment 2 is currently being developed and will interface directly with chemical, biological, and radiological sensors as they are fielded, in accordance with the Common CBRN Sensor Interface

specification. This increment will accommodate the evolving command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) systems as they are fielded and will incorporate an enhanced JWARN Mission Application Software (JMAS). The Sensor Connectivity Capability of the system will be developed to provide the sensor-to-C4ISR system connectivity. Due to their complexity, the JMAS portion and the sensor connectivity portion have been separated for development, as documented in the March 27, 2012, Acquisition Decision Memorandum.

Next Generation Chemical Detector (NGCD)
JPEO-CBD is currently developing the NGCD, which will have the ability to detect solid, liquid, and vapor NTAs on surfaces and in the air and will provide an increase in detection sensitivity and selectivity to detect CWAs and TIMs in multiple environments.

Next Generation Diagnostic System (NGDS) Increment 1
The NGDS is an evolutionary acquisition family of systems to provide increments of capability over time across many echelons of the Combat Health Support System. The mission of the NGDS is to provide CBRN threat identification and FDA-cleared diagnostics to inform individual patient treatment and CBRN situational awareness and disease surveillance. NGDS Increment 1 Deployable Component will significantly improve diagnostic capabilities for deployable combat health support units while also improving operational suitability and affordability. The NGDS Inc 1 Deployable Component is intended to replace the legacy Joint Biological Agent Identification and Diagnostic System beginning in FY17. The NGDS Increment 1 Service Laboratory Component is intended to provide high-throughput biological threat identification, characterization, and diagnostics to fixed site Continental Unites States and Outside of the Continental United States laboratories operated by the Army, Navy, and Air Force in coordination with the Armed Forces Health Surveillance Center.

NGDS Increment 2
NGDS Increment 2 is intended to provide advanced diagnostics for biological pathogens and toxins, diagnostics for chemical and radiological exposures, and capability to lower echelons of care using PON technologies.

Uniform Integrated Protection Ensemble (UIPE) Increment 1
UIPE Increment 1 will provide improved individual protective capabilities to the Warfighter through reduction of physiological and psychological burdens associated with the weight, bulk, thermal strain, and encumbrance of wearing CBRN protective equipment. It will afford protection from CB warfare agents and retain protection after exposure to petroleum, oils, and lubricants and environmental contaminants. The garment will be suitable for wear while performing combat operations, whether on land or sea, in any climate, with minimal impact on combat effectiveness. UIPE Increment 1 will be compatible with current and developmental clothing and equipment, including load-bearing equipment, helmets, handwear, footwear, body cooling systems, and protective masks of the respective Services.

UIPE Increment 2
UIPE Inc 2 will build on and enhance capabilities attained in UIPE Increment 1. In addition, it will seek to address the broader scope of the UIPE Initial Capabilities Document requirements, to include the capability to protect Warfighters from operationally relevant traditional, non-traditional, and advanced CBRN/TIM threats likely to be encountered during Joint Force operations.

ENCLOSURE D: JRO-CBRND EXPERIMENTS AND STUDIES

Experiments and studies conducted by JRO-CBRND in coordination with the Joint Experimentation and Analysis Division (JEAD) and NDU, or under contract by the Institute for Defense Analyses (IDA), are detailed below.

Experiment/Study	Description	Status
Chairman of the Joint Chiefs of Staff Guide 3215, Nontraditional Agents	Established formal approach to procedures for countering NTAs	Complete
Defense Planning Guidance-Directed Study (JRO-CBRND)	Examined how the CBDP Enterprise enhances CWMD Force Posture across interdiction, elimination, protection, and consequence management (CM)	Complete
Resource Management Decision-700-Directed Study on the Use of Domestic Consequence Management (DCM) Forces in Overseas Contingencies (JRO-CBRND)	Examined feasibility and cost of employing DCM Forces overseas in various missions such as elimination and Foreign Consequence Management	Complete
Approach Study #1 – Other than Vapor Hazard Effects Study (JRO-CBRND/IDA)	Examining the optimal way to address challenges from and to assess the operational impact of new or modified chemical agents that differ from traditional agents based on their physical state or lack of vapor signature	Complete
Approach Study #2 – Unforeseen Hazards Studies (Part I-Chemical, Part II-Biological, Part III-Playbook) (JRO-CBRND/NDU)	Identifying specific achievable actions to improve or maintain the CBDP Enterprise's ability to respond to strategic technical surprise	Final Draft
Approach Study #3 – CBDP Risk Assessment Process Development (JSTO-CBD/JPEO-CBD)	Examining how the CBDP Enterprise conducts risk-based analysis in order to inform requirements. Funded by JPEO-CBD, managed and conducted by JSTO-CBD CBI, JRO-CBRND oversight; important in support of JRO-CBRND CSA analysis way ahead	Complete
Advanced Threat Risk Analysis #1 – Advanced Toxins (JRO-CBRND/IDA)	Inform requirements: Examine if advanced and novel toxins will be a significant operational risk after 2019. If so, what is the risk? If we don't know, what are the key information gaps in assessment?	Ongoing
Advanced Threat Risk Analysis #2 – Encapsulation (JRO-CBRND/IDA)	Inform requirements: Examine if encapsulation will be a significant operational risk after 2019. If so, what is the risk? If we don't know, what are the key information gaps in assessment?	Ongoing
Joint Forcible Entry Operations in a CBRN Environment Operational Line-of-Experimentation (JRO-CBRND, USMC, USPACOM, USSOCOM)	Update Capability-based Assessment, enable CCMD and Service Prioritization of capabilities and examine the key areas in which Operational Experimentation will have the most impact over the next six years and which areas the Enterprise should prioritize	Ongoing
Elimination Operational Experiment (JRO-CBRND)	Developing community lexicon; clarifying roles and responsibilities; identifying	Ongoing

	required capabilities; describing how elimination operations are integrated into and support strategic objectives. Identify capability gaps. Develop operational concept	
Warning and Impact Projection Model Concept-of-Use Experiment (JEAD)	Examining how a tool for prediction of future natural disease outbreaks could be used by the Joint Force. JSTO-CBD funded, JRO-CBRND conducted oversight	Complete
Defense Planning Scenario (DPS) Excursions (JRO-CBRND, JSTO-CBD, JS J8, OSD(CAPE))	Update established DPSs for use in CBRND requirements generation and strategic plans	Ongoing
Risk Analysis Methodology (JRO-CBRND/JSTO-CBD/OSD(NCB))	Establish CBDP risk analysis methodology to inform CBDP strategic decisions in an agile, repeatable, and defendable manner.	Ongoing

ENCLOSURE E: FY 2013 CWMD AND CBRN RESPONDER TRAINING AND EDUCATION

DMRTI Courses	Attendees
Clinicians Long Course	90
Clinicians Short Course	11,522
Operators Long Course	142
Operators Short Course	16,836
Basic Awareness Course	33,301
Executive Commander's Course	662
FY 13 Total Number of Students	**62,553**
FY 12 Total Number of Students	**82,450**

Homeland Response Force and CBRNE Enhanced Response Force Package Courses	Attendees
Individual Training	
NIMS 100, 200, 300, 700, and 800b	10,075
HAZMAT Operations	6,500
Emergency Response to Terrorism	10,075
Basic Search and Extraction Course	1,350
CMD Element Attendance of Extraction Staff Planning Course	108
Emergency Trauma Training	1,215
Collective Training	
Regional Joint Interagency Exercise	6,430
External Evaluation	2,825
Local Exercise	10,075
FY 13 Total Number of Students	**48,653**
FY 12 Total Number of Students	**45,161**

Leader Development and Education Courses	Attendees
CBDP Sponsored	
CBDP and NDU CSWMD	17
JRO-CBRND Sponsored	
Joint and Combined Warfighting School (JCWS) CWMD Focus Study	328
USNORTHCOM CWMD Level II	11
USNORTHCOM Defense Support to Civil Authorities Mobile Training Team	458
JCWS Purple Guardian Exercise	216
U.S. Army Command and General Staff School, CWMD & Homeland Security Tracks	406
U.S. Army CBRN Captain's Career Course CM Module	169
U.S. Army Military Police Captain's Career Course CM Module	197
Joint Senior Leaders' Course	29
U.S. Army Engineer Captain's Career Course CM Module	392
U.S. Army and U.S. Air Force Command and Staff Colleges, Joint Interagency Planning Staff Exercise	304
Joint Land Aerospace Sea Simulation (JLASS) Exercise	129
USMC Command and Staff College, National Response to Catastrophic and Disruptive Threats Exercise	202
Air War College, Global Challenge Exercise	245
Joint Special Operations University	83

U.S. Air Force Command and Staff College Joint Interagency Planning Staff Exercise Prep	75
Marine Corps War College JLASS Prep	92
FY 13 Total Number of Students	**3,353**
FY 12 Total Number of Students	**4,218**
FY 11 Total Number of Students	**3,806**
FY 10 Total Number of Students	**3,163**

USACBRNS Courses	**Attendees**
CBRN Specialist Course	2,774
CBRN Basic Officer Leader-Branch Course	346
CBRN Captain's Career Course	1,170
NBC Defense (USMC)	200
CBRN Basic Warrant Officer Course (USMC)	13
Operational Radiation Safety	125
Radiological Safety	55
CBRN Warrant Officer Basic Course	26
Joint Senior Leader Course	28
Gas Chromatograph/Mass Spectrometer Advanced Training	60
Installation Emergency Management Planning	22
CBRN Recon for Brigade Combat Teams	51
Civil Support Skills Course	251
CBRN Responders Course	507
CBRN Mass Casualty Decontamination Course	296
CBRN Dismounted Reconnaissance Course	177
Civil Support Team Pre-Command Course	24
CBRN Pre-Command Course	19
Decontamination Procedures (Non-U.S.)	211
Biological Integrated Detection System Course	294
Joint Biological Point Detection System Course	275
Technical Escort Course	321
M93 Series CBRN Recon System FOX Course	96
Analytical Laboratory System Operator Course	27
Unified Command Suite Operator Course	27
Civil Support Team Operations	25
Shipboard CBR Defense Operations and Training Specialist Course (U.S. Navy)	111
Emergency Management Craftsman Course (U.S. Air Force)	176
Emergency Management Apprentice Course (U.S. Air Force)	220
Advanced Emergency Management Course (U.S. Air Force)	65
Readiness Flight Officer Course (U.S. Air Force)	19
FY 13 Total Number of Students	**8,011**
FY 12 Total Number of Students	**4,836**
FY 11 Total Number of Students	**5,414**
FY 10 Total Number of Students	**5,810**

USAMRICD Courses	**Attendees**
Field Management of CB Casualties Course (FCBC)	273
MCBC Course	210
Hospital Management of CBRNE Incidents Course	112
Distance Learning via Defense Connect Online	233
Offsite Course, 3 Weeks, MCBC (Korea)	173

Offsite Course, 1 Week, MCBC (Jordan)	96
Offsite Course, 2 Days, MCBC, White House Medical Unit	33
Offsite Course, 1 Week, MCBC (Jordan)	90
Offsite Course, 2 Days, MCBC, Local HAZMAT	66
Offsite Course, 2 Weeks, MCBC and FCBC (Jordan)	95
FY 13 Total Number of Students	**1,381**
FY 12 Total Number of Students	**818**
FY 11 Total Number of Students	**1,237**
FY 10 Total Number of Students	**1,094**

USAMRIID Courses	**Attendees**
Medical Management of CB Casualties Course	354
Field Identification of BWAs	8
Field Identification of BWAs Manager's Course	8
FY 13 Total Number of Students	**370**
FY 12 Total Number of Students	**336**
FY 11 Total Number of Students	**367**
FY 10 Total Number of Students	**294**

ECBC Courses	**Attendees**
ECBC CBRN Course (WMD-CST)	139
CB Basic Course (20th SUPCOM)	36
CB CRT-1 Course	65
Target Recognition Small Scale Course	33
FY 13 Total Number of Students	**273**

ENCLOSURE F: ACRONYM LIST

ACRONYM	TERM
AAAS	American Association for the Advancement of Science
AAS	Advanced Anticonvulsant System
AFCENT/SG	Air Force Central Command Surgeon General's Office
AFHSC	Armed Forces Health Surveillance Center
AoA	Analysis of Alternatives
AR 13	ABLE RESPONSE 13
ATD	Advanced Technology Demonstration
BSP	Biosurveillance Portal
BSVE	Biosurveillance Ecosystem
BWA	Biological Warfare Agent
CANATS	Centrally Acting Nerve Agent Treatment System
CB	Chemical and Biological
CBA	Capabilities Based Assessment
CBDP	Chemical and Biological Defense Program
CBR	Chemical, Biological, and Radiological
CBRN	Chemical, Biological, Radiological, and Nuclear
CBRNE	Chemical, Biological, Radiological, Nuclear, and High-Yield Explosive
CCMD	Combatant Command
CDC	U.S. Centers for Disease Control and Prevention
CDD	Capability Development Document
CH EMF	Chemically Hardened Expeditionary Medical Facility
CHRP	Contaminated Human Remains Pouch
CM	Consequence Management
COTS	Commercial Off-the-Shelf
CPD	Capability Production Document
CRP	Critical Reagents Program
CRT	CBRNE Response Team
CSWMD	Center for the Study of Weapons of Mass Destruction
CTR	Cooperative Threat Reduction
CW	Chemical Weapon
CWA	Chemical Warfare Agent
CWC	Chemical Weapons Convention
CWMD	Combating Weapons of Mass Destruction
DARPA	Defense Advanced Research Projects Agency
DCM	Domestic Consequence Management
DCRF	Defense CBRN Response Force
DHS	U.S. Department of Homeland Security
DoD	U.S. Department of Defense

ACRONYM	TERM
DPS	Defense Planning Scenario
DRC	Domestic Response Capability
DR SKO	Dismounted Reconnaissance Sets, Kits, and Outfits
DTRA	Defense Threat Reduction Agency
DUSA-TE	Deputy Under Secretary of the Army for Test and Evaluation
ECBC	U.S. Army Edgewood Chemical Biological Center
EID	Emerging Infectious Disease
ELBI	Emerging Leaders in Biosecurity Initiative
FDA	U.S. Food and Drug Administration
FLW	Fort Leonard Wood
FY	Fiscal Year
HHS	U.S. Department of Health and Human Services
IAW	In Accordance With
IB	Industrial Base
IBWG	Industrial Base Working Group
IDA	Institute for Defense Analyses
IOC	Initial Operating Capability
IPDS-LR	Improved Point Detection System-Life Cycle Replacement
ITRO	Interservice Training Review Organization
JEAD	Joint Experimentation and Analysis Division
JECP	Joint Expeditionary Collective Protection
JEM	Joint Effects Model
JLASS	Joint Land Aerospace Sea Simulation
JP	Joint Publication
JPEO-BMO	JPEO-CBD Biosurveillance Management Office
JPEO-CBD	Joint Program Executive Office for Chemical and Biological Defense
JPM	Joint Project Manager
JROC	Joint Requirements Oversight Council
JRO-CBRND	Joint Requirements Office for Chemical, Biological, Radiological, and Nuclear Defense
JSTO-CBD	Joint Science and Technology Office for Chemical and Biological Defense
JTCG	Joint Threat Coordination Group
JWARN	Joint Warning and Reporting Network
LCBPG	Lightweight Chemical Biological Protective Garment
LRN	Laboratory Response Network
MAGTF	Marine Air Ground Task Force
MCBC	Medical Management of Chemical and Biological Casualties
MCM	Medical Countermeasures
MCWP	Marine Corps Warfighting Publication
MOU	Memorandum of Understanding
MTTP	Multi-Service Tactics, Techniques, and Procedures

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ACRONYM	TERM
NBC	Nuclear, Biologic
NDU	National Defense
NGB	National Guard B
NGDS	Next Generation
NSTM	Naval Ships' Tech
NTA	Non-Traditional A
OASD(HA)	Office of the Assis
OASD(NCB)	Office of the Ass Defense Program
OASD(NCB/CB)	Office of the Ass Defense Program
OPCW	Organisation for t
OSD	Office of the Secr
PHEMCE	Public Health Em
POC	Point-of-Care
PON	Point-of-Need
RDT&E	Research, Develo
ROK	Republic of Korea
S&T	Science and Tech
SPR	Strategic Portfolic
T&E	Test and Evaluatic
TECMIPT	T&E Capabilities a
TEI	Technical Equipm
TIC	Toxic Industrial Ch
TS	Technical Secreta
TTCP-CBD	The Technical Coo
UIPE	Uniform Integrate
USACBRNS	U.S. Army Chemic
USAMRICD	U.S. Army Medica
USAMRIID	U.S. Army Medica
USAMRMC	U.S. Army Medica
USFK	U.S. Forces Korea
USMC	U.S. Marine Corps
USNORTHCOM	U.S. Northern Com
USPACOM	U.S. Pacific Comm
USSOCOM	U.S. Special Opera
USSTRATCOM	U.S. Strategic Com
WEVEE	Western, Eastern,
WHO	World Health Orga
WIPT	Working Integrate

ACRONYM	TERM
WMD	Weapons of Mass Destruction
WMD-CST	Weapons of Mass Destruction Civil Support Team