



U.S. ARMY COMBAT CAPABILITIES DEVELOPMENT COMMAND CHEMICAL BIOLOGICAL CENTER

Automating the Future CBRN Battlefield

25 JULY 2023

AGENDA



- DEVCOM CBC Organization
- DEVCOM CBC Focus Areas
- Automating the Future CBRN Battlefield
 - Microsensors
 - Autonomous Decontamination
 - Integrated Layered Defense
- Collaboration Mechanisms
- How We Achieve Success
- Questions

DEVCOM CBC MISSION AND VISION



*Cum Scientia Defendimus (With Science We Defend)
statue at Aberdeen Proving Ground, MD*

MISSION

Provide innovative chemical, biological, radiological, nuclear and explosive (CBRNE) defense capabilities to enable the Joint Warfighters' dominance on the battlefield and interagency defense of the homeland

VISION

Be the premier provider of innovative CBRNE solutions for the Army, DOD, the Nation and our allies

APPROACH

Research, development and engineering combined with testing, training and field operations to create new, effective chemical biological defense solutions

DEVCOM LEADERSHIP



U.S. ARMY COMBAT CAPABILITIES DEVELOPMENT COMMAND



MG Miles Brown
CG DEVCOM



CSM Brian Haydt
CSM DEVCOM



Dr. Eric Moore
DtCG DEVCOM



BG David Trybula
DCG DEVCOM



Mr. Jeff Thomas
S&TI DEVCOM



Ms. Kim Gietka
COO DEVCOM

DEVCOM AMERICAS

Forward Element Center
Ft. Sam Houston, TX

DEVCOM ATLANTIC

Forward Element Center
Stuttgart, Germany

DEVCOM INDO-PACIFIC

Forward Element Center
Ft. Shafter, HI

The DEVCOM team comprises seven technology centers and a research laboratory



Mr. Chris Grassano
Armaments Center



Dr. Patrick Baker
Army Research Laboratory



Dr. James Kirsch
Aviation & Missile Center (A)



Mr. Joseph Welch
C5ISR Center



Mr. Michael Bailey
Chemical Biological Center



BG David Trybula
DEVCOM Analysis Center (A)



Mr. Michael Cadieux
Ground Vehicle Systems Center



Mr. Douglas Tamilio
Soldier Center

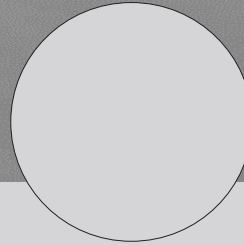
DEVCOM CBC LEADERSHIP



U.S. ARMY DEVCOM CHEMICAL BIOLOGICAL CENTER



Mr. Michael A. Bailey
Director
Chemical Biological Center



Vacant
Military Deputy



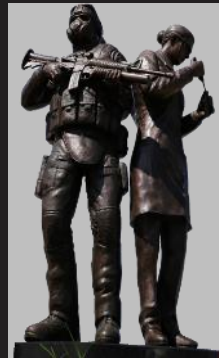
Mr. Thomas Woloszyn
Chief Operating Officer



Dr. Frederick Cox
Research & Operations Director



Ms. Megan Hower
Engineering Director (Acting)



Cum Scientia Defendimus
(With Science We Defend)



Dr. Peter Emanuel
Senior Research Scientist
BioEngineering

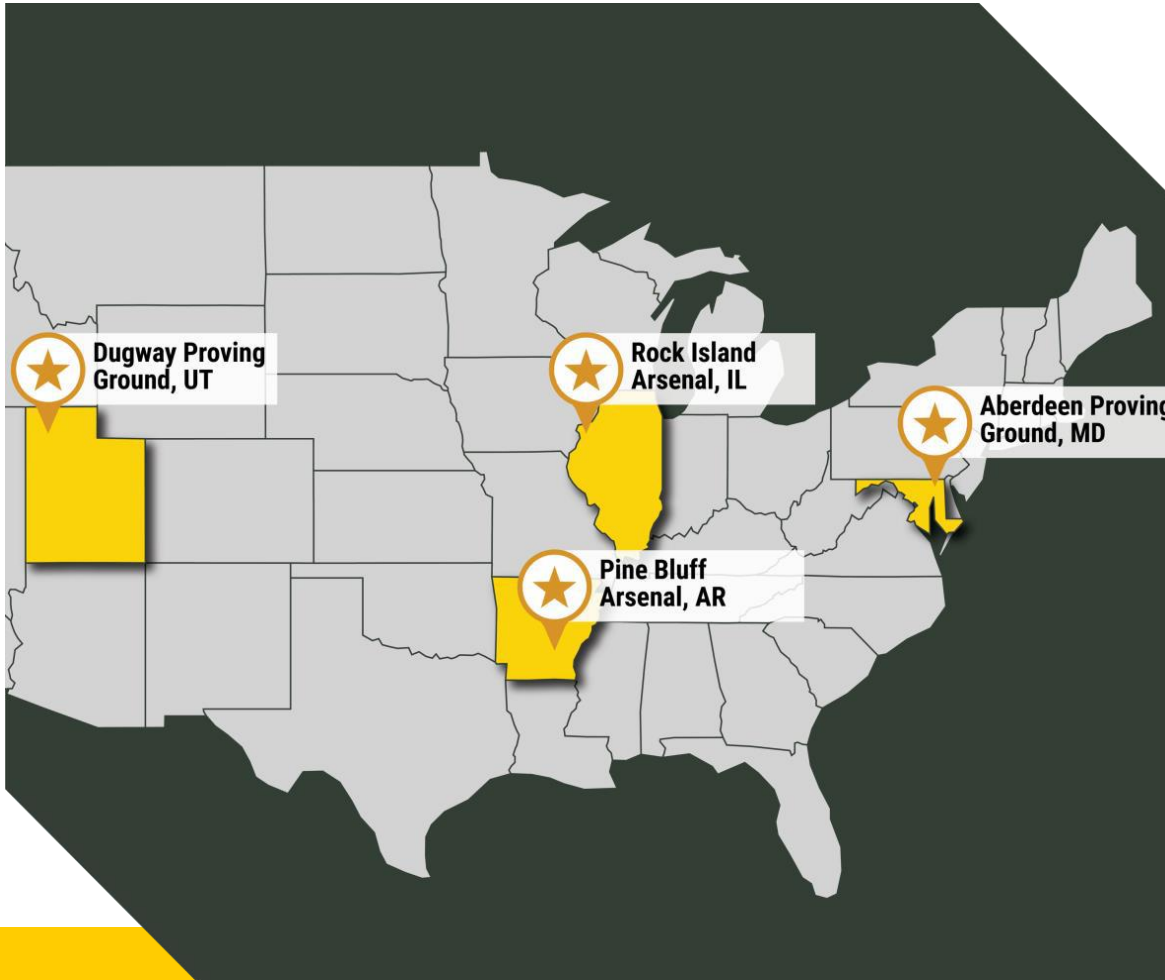


Dr. Patricia McDaniel
Senior Research Scientist
Chemistry

DEVCOM CBC WORKFORCE AND INFRASTRUCTURE



WHERE WE ARE



WORKFORCE*

1,361

Total CBC Workforce

Personnel Reliability Program

301

Employees in Chemical
PRP

30

Employees in
Biological PRP

50

Employees with
Dual PRP Certs

INFRASTRUCTURE

1.22 million

Square feet of laboratory and chamber
space

Chemical Surety Hoods

BSL-2 and BSL-3 Hoods

Toxic Test Chambers

Explosive Containment
Chambers

Multi-Purpose Mobile
Platforms

Operational Mobile
Laboratories

*Workforce total as of 18 JULY 2023 based on 1,035 Army Civilians, 1 Military and 325 Contractors.

UNIQUE CBC S&T AND LIFECYCLE ENGINEERING COMPETENCIES



Threat Agent Science & Toxicology

- Agent Fate
- CB Analysis
- Chemical Agent Synthesis
- In Silico/In Vitro Toxicology
- In Vivo Toxicology
- Threat Agent Transport & Dispersion Properties

CBRNE Assessment

- CB Collection
- CB Detection
- CB Experimentation and Demonstration
- CB Identification
- CBRN S&T Integration and Prototype Development
- CBRN Warning and Reporting
- Modeling and Simulation for CBRNE Operational Impact Analyses

CBRNE Protection

- CB Decontamination
- CB Destruction
- CBR Filtration
- Protective Coatings
- Respiratory Protection
- Smoke & Obscurant Synthesis
- Smoke & Obscurant Transport & Dispersion
- Transport & Dispersion of CBR Materials

Biotechnology & Biological Sciences

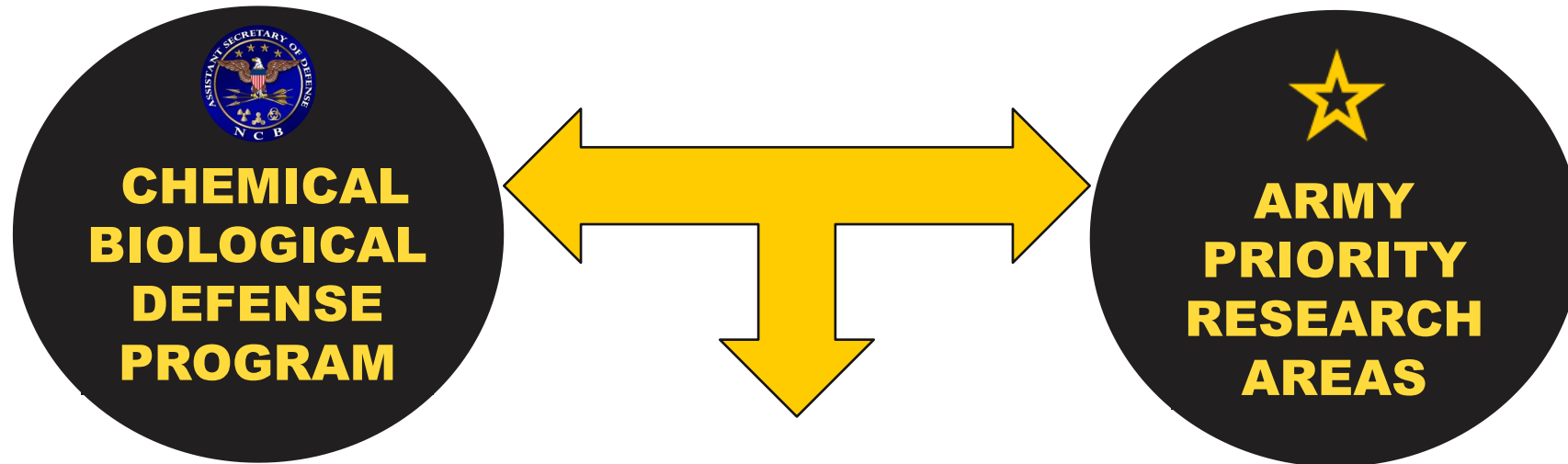
- Bioengineering and Synthetic Biology
- Biorepository/Biobanking

CB Agent Destruction, Disposal, & Mitigation Operations

- Chemical Facility and Equipment Maintenance
- Environmental Monitoring and Sample Analysis
- Recovery Operations



DEVCOM CBC FOCUS AREAS



DEVCOM CBC Modernization Focus Areas



Advance S&T efforts to protect against emerging CB threats



Modernize biomanufacturing and synthetic biology processes to scale up materials



Increase the use of robotics and autonomous systems to improve accuracy and safety



Expand key partnerships to accelerate technology advancements



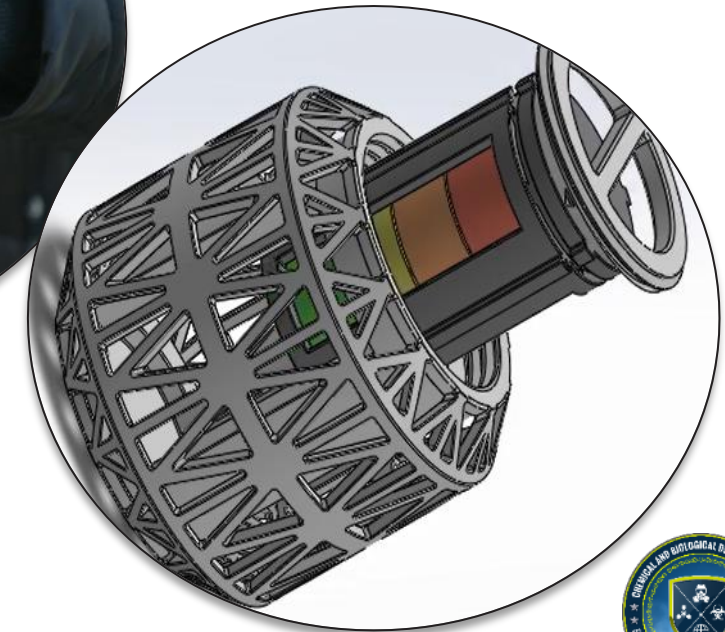
Support S&T for All Domain Protection/AFC Concept for Protection

Supporting the Nation's defense technology needs

DEPLOYABLE MICROSENSORS



- Paradigm shift in multi-domain threat identification to properly inform Soldiers, Sailors, Airmen, Marines and Guardians of CB threats
- Co-funded & partnered with DTRA-JSTO
- DoD research initiative looking for new or existing partners that can provide miniaturized chemical detection, novel engineering solutions, low or cost unique manufacturing methodologies
- Technology addresses national strategic priority in the CBRN Modernization Policy to unburden the Soldier and provide CB protection



DEVCOM CBC is part of a collaborative effort to advance microsensor technology to create smaller, lighter, cheaper, yet capable, sensors to detect CBRN hazards across multi-domain operations.

AUTONOMOUS DECONTAMINATION



- Demonstrates application of autonomous behaviors to the challenge of contamination mitigation of equipment
- Demonstrates incrementally using a mixed technology approach, adapting emerging technology and common robotic platforms where feasible
- Demonstrates the feasibility of the concept to provide combat developers an opportunity to refine future requirements
- Collaboration with DTRA-JSTO, JPEO-JPM CBRN Protection, U.S. Army CBRN School, DEVCOM GVSC, DEVCOM ARL, and industry partners



DEVCOM CBC is part of a collaborative effort to reduce the time, logistics, and personnel required to conduct contamination mitigation of CBRN hazards across the multi-domain battlefield

INTEGRATED LAYERED DEFENSE



- Collaborate with partners to develop and advance technologies to provide customized chemical biological situational understanding on the battlefield
- Provide specialized knowledge to integrate technologies to communicate data from chemical and biological sensors up the chain of command to inform decision makers
- Integration of systems across the Department of Defense



DEVCOM CBC has been at the forefront of advancing technologies to better identify chemical biological threats, establish situational understanding, and continuously monitor responses to the threat.

COLLABORATION MECHANISMS



DEVCOM CBC offers a wide range of chemical biological expertise, cutting edge facilities and innovative technology solutions.

Our partners include

- Government agencies
- Private-sector companies
- Academic institutions

OTHER GOVERNMENT AGENCIES

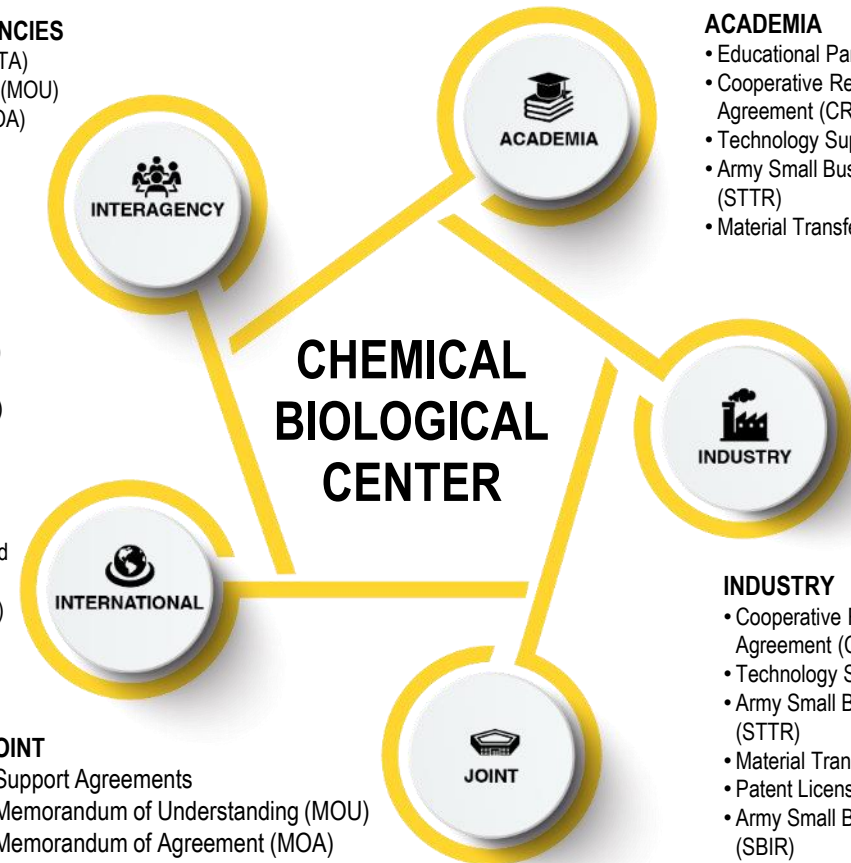
- Material Transfer Agreement (MTA)
- Memorandum of Understanding (MOU)
- Memorandum of Agreement (MOA)
- Interagency Agreement (IAA)

INTERNATIONAL

- Memorandum of Understanding (MOU)
- Data Exchange Agreement (DEA)
- Information Exchange Agreement (IEA)
- Project Agreement (PA)
- Engineer and Scientist Exchange Program (ESEP)
- Foreign Comparative Test (FCT)
- International Cooperative Research and Development (ICR&D)
- Foreign Testing and Assessment (FTA)
- Coalition Warfare Program (CWP)

JOINT

- Support Agreements
- Memorandum of Understanding (MOU)
- Memorandum of Agreement (MOA)



CBC seeks partners in developing capabilities to prepare and protect our Warfighters, Nation, and Allies.

We are a national asset, an enterprise partner, and have a history of delivering.

HOW WE ACHIEVE SUCCESS



- Experts in CB defense
- Unique capabilities
 - Facilities
 - Expertise
- Institutional knowledge

VALUE TO
STAKEHOLDERS



Collaborate
Integrate

APPLY INNOVATIVE
APPROACHES



COMMON
GOAL

Prepare and protect the
warfighter, homeland
and allies

For more information, please contact

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QUESTIONS?