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DEFENSE THREAT REDUCTION AGENCY

DTRA Research and Development 101

APPROVED For Public Release

As of 21 Jan 2026

Deter. Prevent. Prevail.

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Agenda

- Leadership and Organization
- Mission and Functions
- RD Departments
 - Chemical and Biological Technologies
 - Counter WMD Technologies
 - Nuclear Technologies
 - Operations
 - Test and Assessment
- Conclusion

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RD Leadership

**Dr. James
“Ben” Petro**
RD Director



**COL
Matthew
Moakler**
RD Deputy
Director



**Mr. Carl
Brown**
RD Chief of
Staff



DEPARTMENT LEADERSHIP



CHEM-BIO TECHNOLOGIES (RD-CB(JSTO))
Dr. Robert Kristovich
RD-CB(JSTO), Director



CWMD TECHNOLOGIES (RD-CX)
Ms. Amanda Richardson
RD-CX, Director



NUCLEAR TECHNOLOGIES (RD-NT)
Mr. Marc Franciszkowicz
RD-NT, Director



R&D OPERATIONS (RD-OP)
Mr. Dustin Eward
RD-OP, Chief



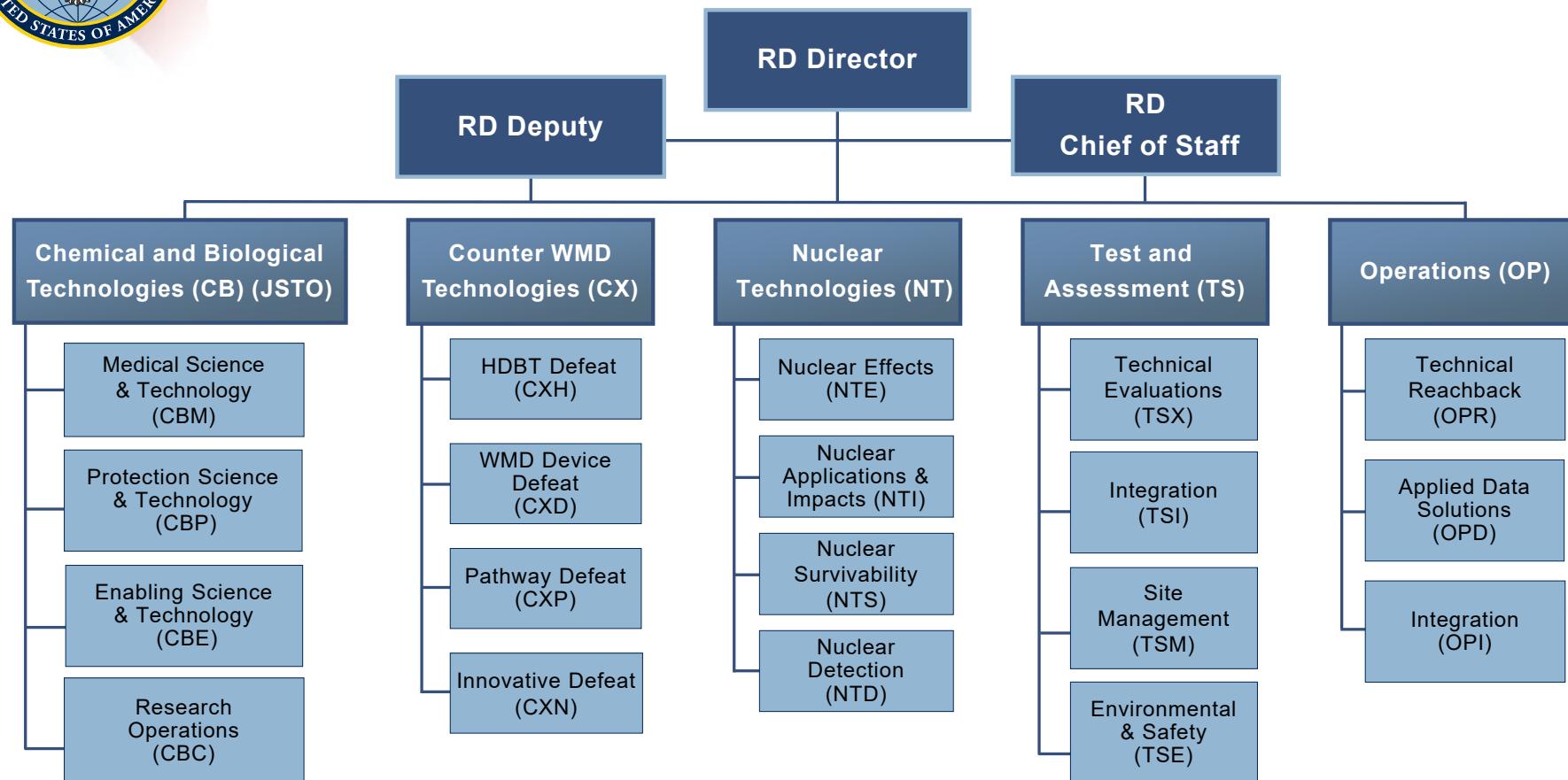
TEST AND ASSESSMENT (RD-TS)
Dr. Gary Hook
RD-TS, Chief

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RD Organization



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RD Workforce Locations

Albuquerque, NM

Kirtland AFB

- RD-TS
- RD-NT (DTRIAC)
- RD-CX (West)



Some Additional Workforce Locations

- Las Vegas, NV
- Fort Bragg, NC
- Edgewood / Aberdeen Proving Ground, MD
- West Point, NY

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National Capital Region

Defense Threat Reduction Center (DTRC) / Ft. Belvoir, VA

- RD-CB (JSTO)
- RD-NT
- RD-OP
- RD-CX



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RD Mission and Functions

Generate customer focused, threat informed, trusted technical solutions to deter and counter critical WMD problems for today and tomorrow.



RD-CB: Chemical and Biological Technologies (JSTO)



RD-CX: Counter WMD Technologies



RD-NT: Nuclear Technologies



RD-TS: Test and Assessment



RD-OP: Operations

RD executes its mission by DELIVERING INNOVATIVE SOLUTIONS that meet current mission requirements in a timely manner and by ANTICIPATING AND PREPARING FOR EMERGING AND FUTURE THREATS with a balance of fundamental and applied research across the portfolio.

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RD Strategic Partnering

RD partners with other U.S. Government agencies (such as National and Service Laboratories), and international S&T organizations to develop CWMD capabilities that address prioritized CCMD / Joint Force gaps.



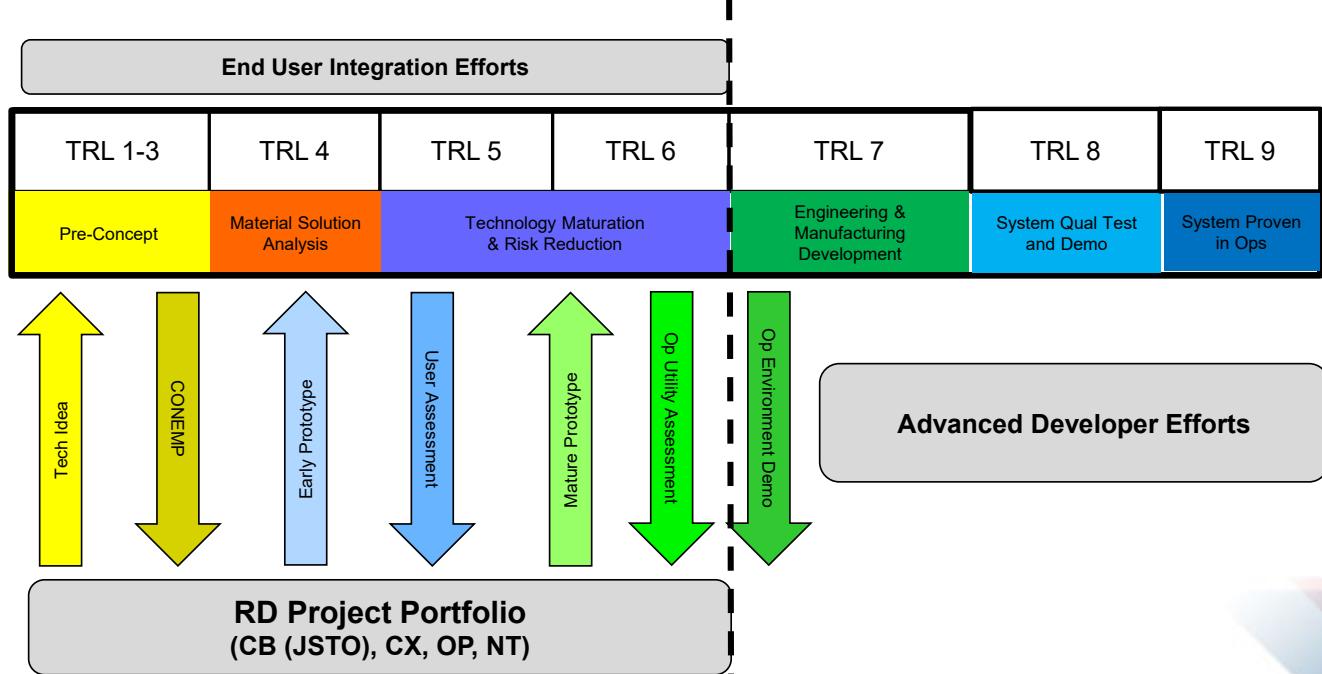


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RD Technology Readiness Levels



DTRA request for support process



TRL- Technology Readiness Level

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RD-CB (JSTO): Chemical and Biological Technologies Department



RD-CB (JSTO) leads DOW S&T to rapidly develop and deliver innovative capabilities to deter adversarial chemical and biological use, and prepare, protect, and enable a more lethal Joint Force ready to fight in a CB-contested environment.



Top CB priorities include Medical S&T; Physical S&T; and Enabling S&T in alignment with DASW (CBRND)'s *Capability Areas (Integrated Early Warning, Medical Readiness and Response, Contamination Mitigation, and Protection)*.

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RD-CB(JSTO): Chemical and Biological Technologies Department

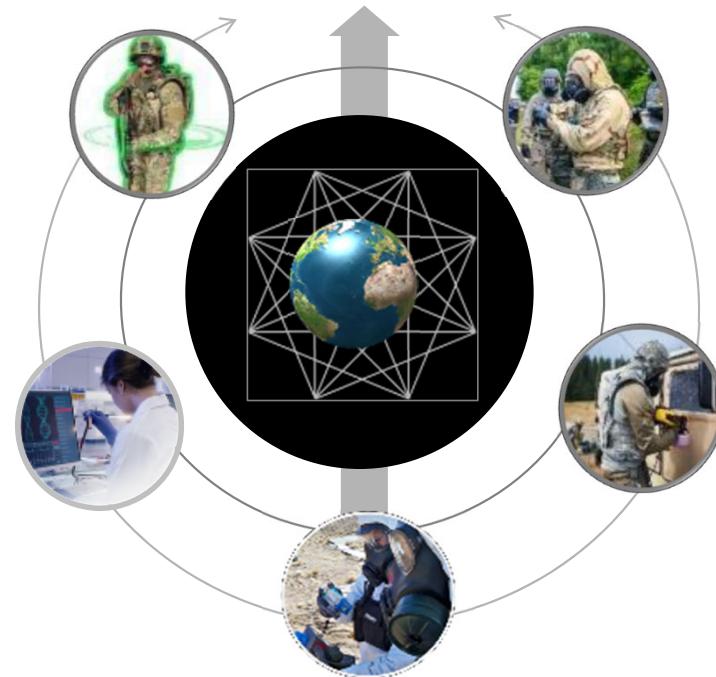


CBM – Medical S&T Division

Develops vaccines, therapeutics, diagnostics, and other innovative capabilities to prevent, mitigate, and eliminate chemical and biological threats inside the body.

CBP – Physical S&T Division

Develops innovative technologies for detecting, identifying, and mitigating chemical and biological threats outside of the body.



CBE – Enabling S&T Division

Conducts innovative research to produce critical data and knowledge, supporting the development of capabilities against chemical and biological threats and operations in a chemical or biological threat environment.

CBC – Research Operations

Division Manages JSTO's internal processes, including planning, budgeting, acquisition, policy, human resources, and administration.

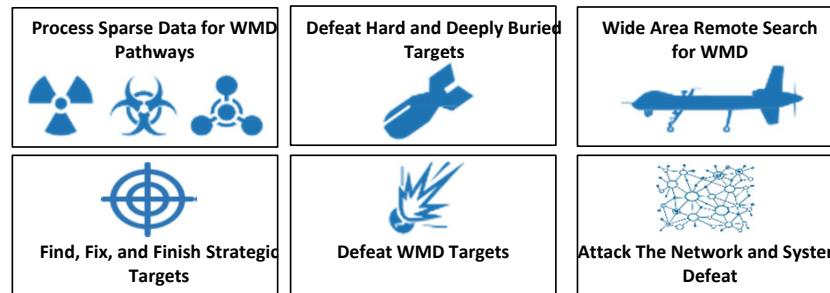
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RD-CX: Counter WMD Technologies Department

RD-CX develops, demonstrates and transitions innovative technologies and capabilities to actively counter the full spectrum of adversary activities across the WMD continuum



CWMD Mission Domain



Top RD-CX priorities include automated advanced target development, counter WMD analysis, hardened and deeply buried targets, target assessment, counterforce systems, and disruption of WMD logistics and production networks.

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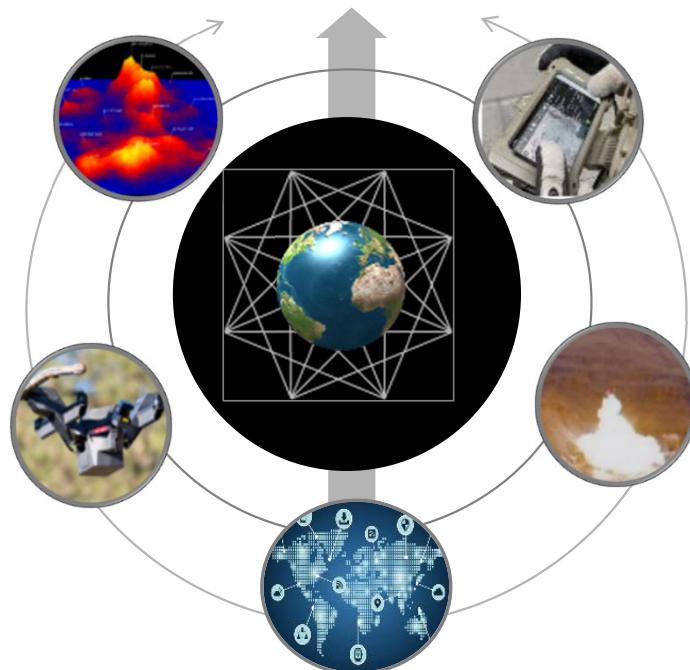
RD-CX: Counter WMD Technologies Department

CXH – HDBT Defeat

Supports a systematic approach to hold HDBTs and strategic targets at risk to include identifying, characterizing, engaging, and assessing attacks against key UGFs and bunkers across the competition continuum.

CXD – WMD Device Defeat

Develops multi-domain capabilities to locate, gain access to, seize, secure, render safe, recapture, recover, and neutralize or destroy WMD devices and delivery systems while minimizing collateral damage.



CXP – Pathway Defeat

Provides multi-domain capabilities to dissuade, deter, delay, disrupt, destroy, divert, or otherwise complicate conceptualization, development, proliferation, and use of WMD and associated systems.

CXN – Innovative Defeat

Delivers advanced, warfighter-unique technologies using emerging technological approaches to characterize, assess, and defeat WMD activities across the competition continuum to increase decision space for senior leaders.

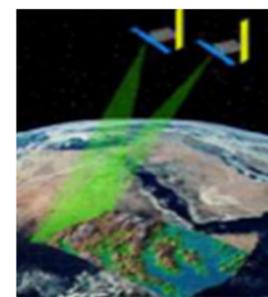
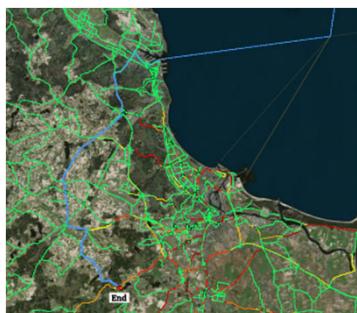
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RD-NT: Nuclear Technologies Department

RD-NT researches, develops, and transitions nuclear weapons effects, survivability, detection, and monitoring capabilities to support and enable an effective nuclear deterrent.



Top NT priorities include Nuclear Modernization and Sustainment; Operating in a Nuclear Environment; Mission Assurance and Risk Mitigation Support; Nuclear Monitoring and Verification; and Forensics.

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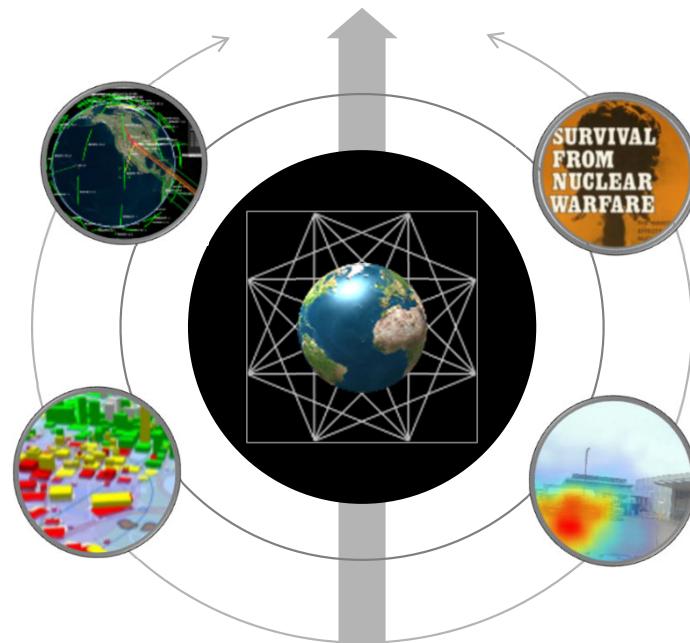
RD-NT: Nuclear Technologies Department

NTE – Nuclear Effects

Creates modeling & simulation tools for nuclear targeting support and consequences of execution analyses.

NTI – Nuclear Applications & Impacts

Develops applications for nuclear operations, wargaming, and experimentation tools for nuclear environments; all supported by a common architecture of nuclear M&S technologies to inform warfighters.



NTS – Nuclear Survivability

Provides nuclear technologies, standards, historical data, and testing capabilities to ensure that U.S. nuclear and conventional forces survive and fight through adversary nuclear attacks.

NTD – Nuclear Detection

Research, develop, and deliver innovative radiological and nuclear signature detection and analysis capabilities to enable warfighting, nuclear deterrence, and attribution support.

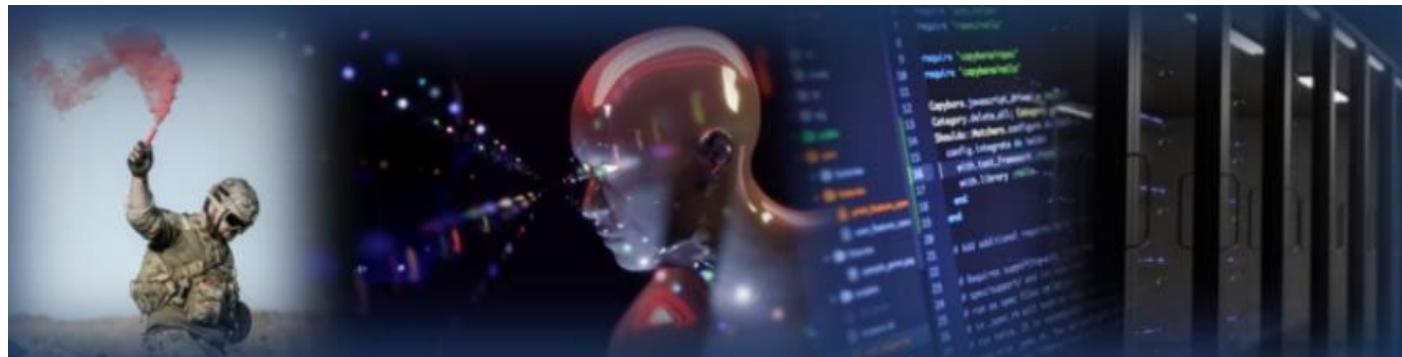
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RD-OP: Operations Department

RD-OP provides cross-cutting capabilities to integrate DTRA's broader RDT&E portfolio and applies RD's CBRN technical expertise to address warfighter information needs.



Top OP priorities include maintaining a pipeline of foundational research; driving integrated acquisition; enabling S&T cooperation with international partners; leveraging information technology to improve CWMD coordination; and providing CBRN Technical Reachback.

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RD-OP: Operations Department

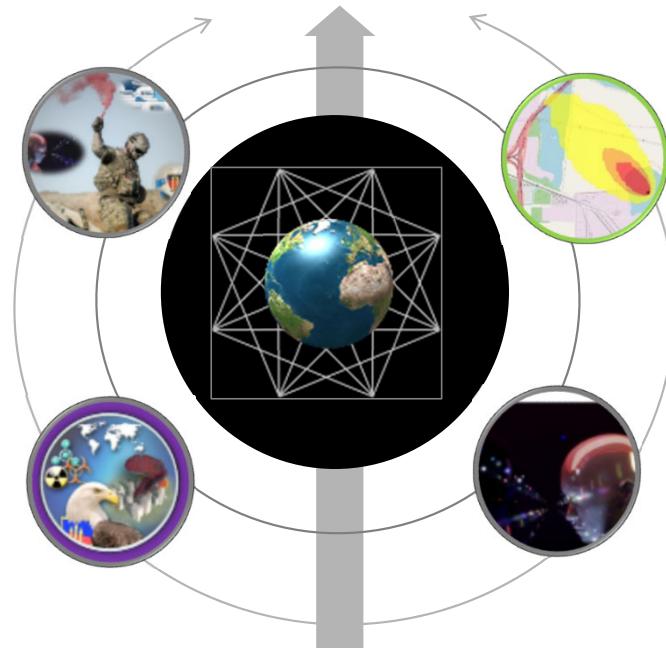
OPD - Applied Data Solutions

Delivers data visualizations and collaboration technologies to enable the full spectrum of CWMD missions and specializes in the agile development of software solutions tailored to unique CWMD strategic and operational needs.

OPI - Integration

Works across all RD departments and investments to ensure effective integration in areas including:

- Directorate-wide acquisitions
- Customer request management
- International S&T Cooperation
- Small business (SBIR/STTR)



OPR - Technical Reachback

Provides 24/7 manned CBRNE decision support capability for planning, exercise support, operations, and post-event analysis and Serves as the technical operations hub for the Interagency Modeling and Atmospheric Assessment Center (MAAC) events.

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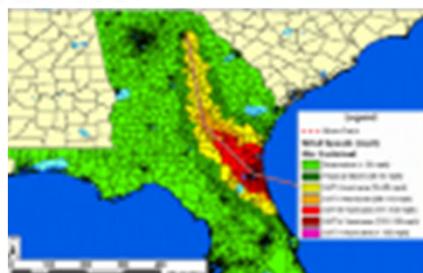
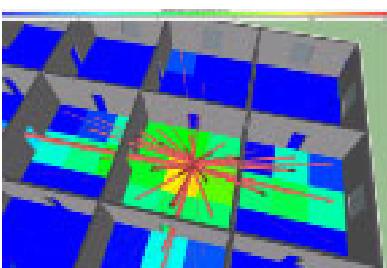
RD-OP: Technical Reachback

Technical Reachback provides 24/7 manned CBRNE subject matter expertise, decision support capability for planning, operations, and post event analysis to OSD, the Combatant Commands, and other U.S. Government partners.



Modeling Tools used by Reachback:

- Atmospheric Plume Modeling
- Waterborne & Natural Hazard Modeling
- Nuclear Modeling
- Infectious Disease Modeling
- Counter Improvised Explosive Device Attack Modeling



Reachback Priorities

- Operational support
- Enabling activities
- Epidemiological modeling

- Nuclear Weapon Effects Phenomenology
- Post event analysis

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RD-TS: Test and Assessment Department

RD-TS provides objective evaluations of new capabilities to support the DTRA mission and national priorities through test and assessment.



Top TS Priorities include End to End Testing (Planning, Execution, and Reporting); Mobile Threat Representative Testbeds; and Sensitive Assessments.

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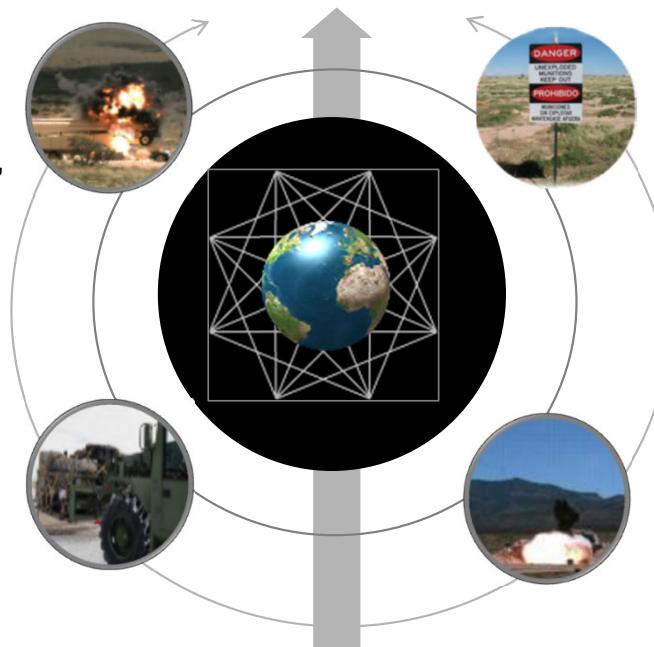


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RD-TS: Test and Assessment Department

TSX – Technical Evaluations

Conducts Test & Evaluation and rapid assessments to maintain U.S. superiority in countering WMD and emerging threats, mitigate the risks of technology surprise, and respond to the warfighters' urgent requirements.



TSM – Site Management

Provide testbed coordination to include scheduling, access, and testbed and range compliance; oversee test article design, construction, and fabrication; provide test specific Quality Assurance and Quality Control.

TSE – Safety & Environmental

Eliminates and mitigates hazards in the workplace to reduce or eliminate the exposure of our employees to hazards associated with testing and the construction environment.

TSI - Integration

Ensures effective and efficient use of resources.

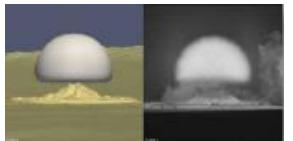
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Developing Capabilities to Fight and Win on the CBRN Battlefield

Deliver tools that enable effective targeting of U.S. weapons and inform the consequences of attacks



Nuclear Effects



Conventional Effects

Equip forces to operate effectively on the nuclear battlefield



MERLIN / VIPER
Standoff Radiation Detection

Mobile Field Kit-CBRN automates collection, sharing, and display of data



Provide technologies, standards, historical data, and testing to ensure forces can survive and fight



Test bed structure to support full-spectrum testing

Test concepts and plans through rigorous wargaming

M&S to enable planning and training



24/7 technical analysis of CBRNE questions

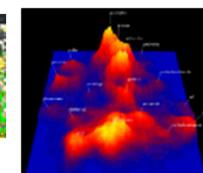
24/7 Access to DTRA M&S tools & experts to interpret results



Deliver integrated, cloud-ready, AI-enhanced applications and data analysis



Situational Awareness Tools



Protect the U.S. Joint Force with advanced medical countermeasures and early warning capabilities



Prophylactic and medical countermeasure treatment options unburden and protect the U.S. Joint Force

Rapid Analysis of Threat Exposure technology allows data from wearable devices to warn of COVID-19 infections prior to the onset of symptoms

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DTRA RD Summary

DTRA RD Provides:

- Science, technology, and capability development investments that maintain the U.S. military's technological superiority to:
 - Deter strategic attack against the United States and its allies
 - Prevent, reduce, and counter WMD and emerging threats
 - Prevail against WMD-armed adversaries in crisis and conflict
- An integrated and coordinated portfolio that leverages the DoW, Interagency, and international partners providing support to our U.S. Joint Forces.
- Comprehensive R&D investment to increase agility, respond to new or changing Combatant Command requirements, as well as national, and DOW CWMD priorities.

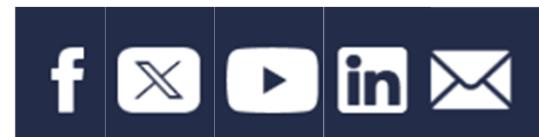
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