

UNCLASSIFIED



DEFENSE THREAT REDUCTION AGENCY

DTRA Research and Development 101

APPROVED For Public Release

Deter. Prevent. Prevail.

UNCLASSIFIED



Our Core Values

Team Oriented

Though complex and dispersed, we are a single cohesive Agency

People Centric

Our most valuable resource to counter WMD

Mission Focused

United in purpose that our work matters





Our History

An Agency defined by 80 years of evolution...

that continues to evolve...



1941-1947
Manhattan
Engineering District



1947-1959
Armed Forces
Special Weapons
Project



1959-1971
Defense Atomic
Support Agency



1971-1996
Defense Nuclear
Agency



1996-1998
Defense Special
Weapons Agency



1988-1998
On-Site Inspection
Agency



1998 -
Defense Threat
Reduction Agency

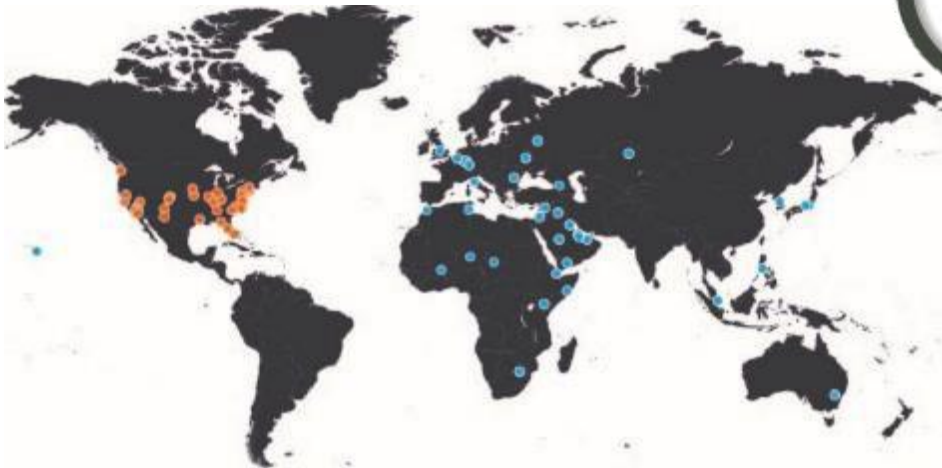
*...to address the most consequential threats
to our national security*

Deter. Prevent. Prevail.



Our People & Resources

A team composed of highly diverse skillsets providing expertise throughout the CWMD enterprise





UNCLASSIFIED

RD Workforce Locations

New Mexico
Kirtland AFB

National Capital Region
Defense Threat Reduction
Center (DTRC) / Fort Belvoir



Some Additional Workforce Locations

West Point, NY; Las Vegas, NV; Fort Liberty, NC; and Edgewood/Aberdeen Proving Ground, MD

Deter. Prevent. Prevail.

UNCLASSIFIED



UNCLASSIFIED

RD Mission and Functions

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



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.

Deter. Prevent. Prevail.

UNCLASSIFIED



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.

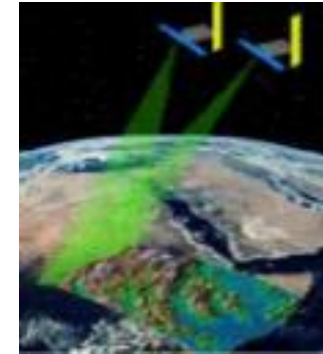
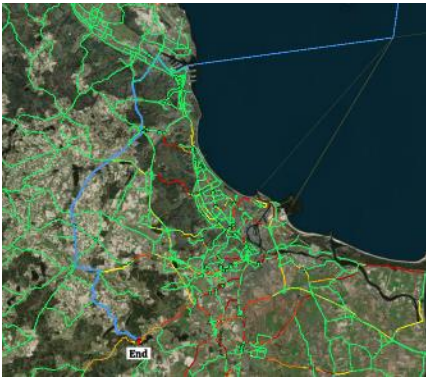




UNCLASSIFIED

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 Operating in a Nuclear Environment (ONE); Nuclear Modernization and Sustainment; Mission Assurance and Risk Mitigation Support; Nuclear Arms Control; and Forensics.



UNCLASSIFIED

RD-NT: Nuclear Technologies Department

Nuclear Weapon Effects

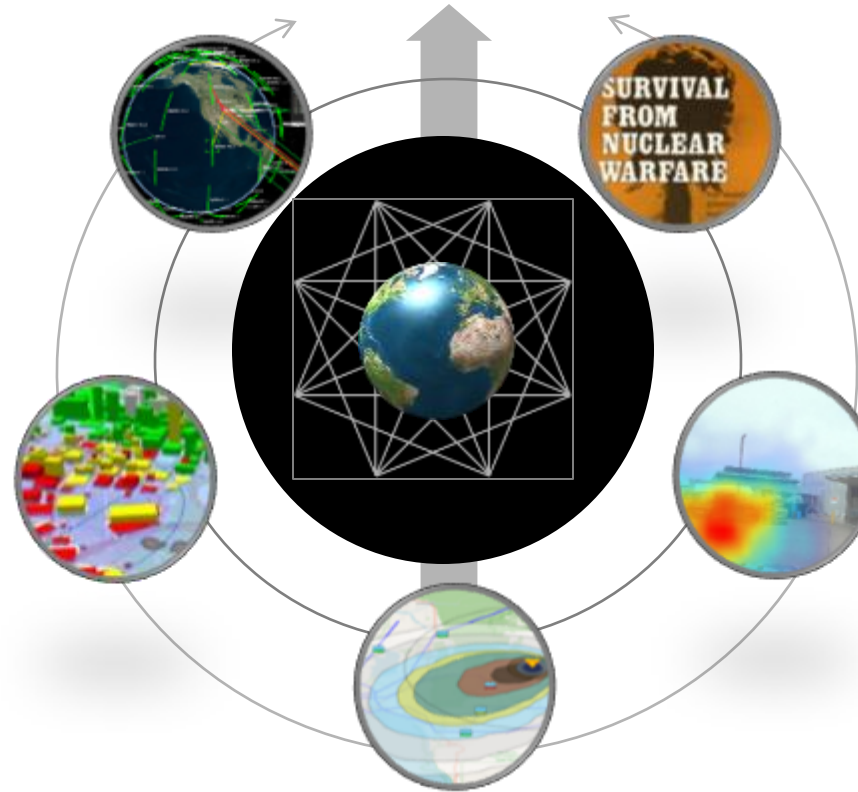
Creates modeling & simulation tools for nuclear targeting support and consequences of execution analyses.

Nuclear Integration

Provides cloud-ready nuclear modeling platform, interfaces and applications & nuclear archives accessibility.

Nuclear Assessments

Develops monitoring and verification, national technical nuclear forensics, and arms control capabilities.



Nuclear Survivability

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

Nuclear Detection

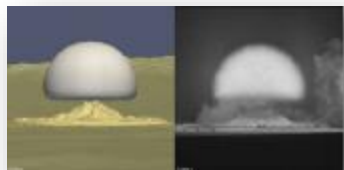
Develops nuclear and radiological defense capabilities enabling actionable information to the Joint Force.



UNCLASSIFIED

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



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

***MERLIN / VIPER
Standoff Radiation
Detection***



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

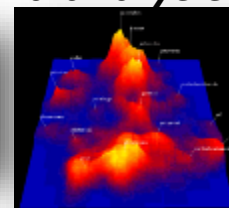
24/7 Access to DTRA M&S tools & experts to interpret results



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



Situational Awareness Tools



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



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

Deter. Prevent. Prevail.

UNCLASSIFIED



Nuclear Data Topics Summary

New 5-yr nuclear data project focused on:

- Development of DoD experimental capabilities through measurements of high-priority reactions and materials
- Development of unique DoD neutron sources

Project objectives

1. Cross section measurements of neutron inelastic scattering on atmospheric constituents
→ Collaboration with ARL, APEX facility
2. Neutron-induced gamma-ray yields on constituents used in metal additive manufacturing
→ Collaboration with ARL, APEX facility
3. Improvements of high-rep rate laser-based neutron sources
→ AFIT led, collaboration with AFOSR effort
4. Improvements of pulsed-power based neutron sources
→ Collaboration with NRL, GAMBLE-II facility

Project: Nuclear Data Topics

*Air Force Institute of Technology
Army Research Laboratory (ARL)
Naval Research Laboratory (NRL)
University Labs (Ohio U & Notre Dame)*

PI: Dr. John McClory (AFIT)

POC (1&2): Dr. Michael Febbraro (AFIT)

POC (3): Dr. Michael Dexter (AFIT)

POC (4): LtCol Jesse Foster (AFIT)

Sponsor – DTRA



DTRA Research and Development Summary

DTRA Research and Development Provides:

- Science, technology, and capability development investments that maintain the United States military technological superiority to:
 - Deter strategic attack against the United States and its allies
 - Prevent, reduce, and counter weapons of mass destruction and emerging threats
 - Prevail against adversaries in crisis and conflict
- An integrated and coordinated portfolio that leverages the Department of Defense, Interagency, and international partners providing support to our United States Joint Forces.
- Comprehensive research and development investment to increase agility, respond to new or changing Combatant Command requirements, as well as national, and Department of Defense countering weapons of mass destruction priorities