



ManTech

International Corporation®

Leading the Convergence of National Security and TechnologySM



Systems Engineering
and Integration



Information
Technology



Intelligence Analysis
and Mission
Operations



Global Integrated
Logistics Systems
and Support

NDIA 25th Annual T&E National Conference

Challenges Facing T&E Of Systems To Combat Rad/Nuc Smuggling

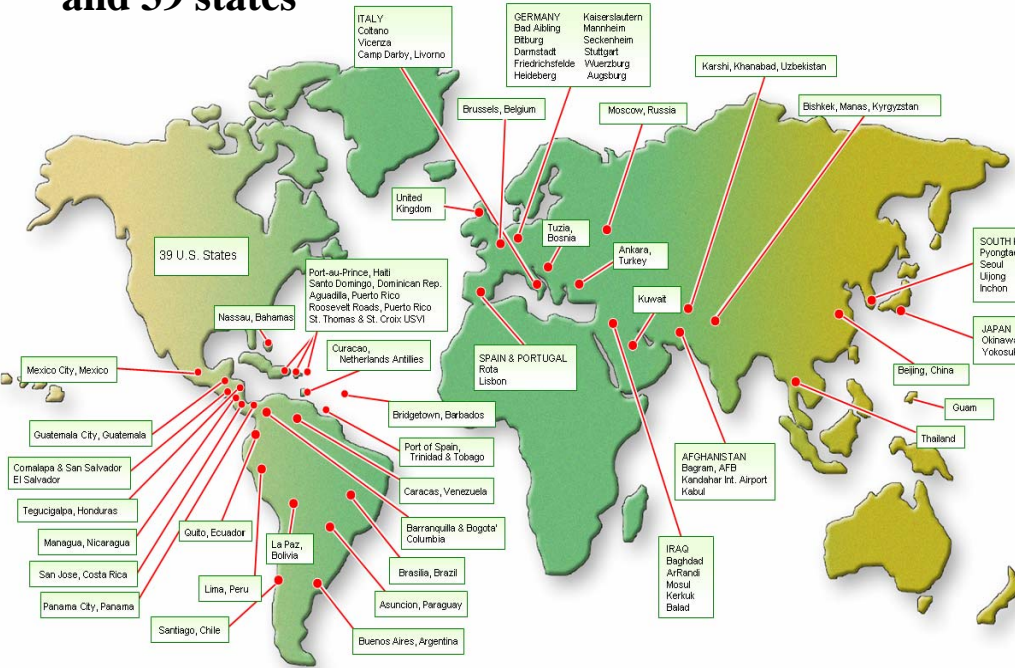
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Who is ManTech?

- **The ManTech culture is based on programmatic and technical excellence, mission support, quality, trust, integrity and ethics**
- **7,000+ highly skilled employees**
 - 75% with security clearances
 - Approximately 50% cleared Top Secret and above
- **180 locations world wide with operations in 42 countries and 39 states**



- **The ManTech Impact:**
 - A culture that emphasizes practical implementation program management and systems engineering processes
 - We create added value through quality, innovation, and partnership
 - World class engineers and technical specialists
 - Unique experience in transforming leading edge concepts and technologies into operationally effective systems
- **Operational Conflict of Interest (OCI) Free**
 - We provide our customers with the right information at the right time to make informed programmatic and technical decisions
 - We don't make things, we provide the environment to make them better
 - Our people are our only product



Our core competencies cross many domains and are attentive to our customer's technical and programmatic support needs

Homeland Security
WMD Detection
POE Security

Unattended Aircraft Systems
Electro-optics and lasers
Radar and Signal Processing

Aircraft protection
C4ISR
Information Technology

DOMAINS

- **Program Management/Systems Acquisition**
 - Acquisition strategy development
 - Program planning and control/EVM
 - Budget and financial management support
 - Milestone and technical reviews
- **Systems Engineering and Integration**
 - Complex system of systems engineering
 - Enterprise architecture
 - CONOPS
 - Requirements analysis and management
 - Design/development oversight and review
 - Modeling, Simulation and Analysis
 - Test and evaluation/IV&V
- **Total Life-Cycle Sustainment**
 - Life-cycle assessment/business case analysis
 - ILSPs
 - Design for sustainment
 - Reliability, supportability, maintainability

- **Environmental Planning Services**
 - NEPA planning, compliance, and assessment
 - EIS, EA, environmental studies
 - Endangered species act
- **Mission Assurance/Specialty Engineering**
 - System safety
 - Reliability and quality engineering
 - Software assurance
 - Software IV&V
 - Risk management
- **Test & Evaluation**
 - Test Planning
 - Test Execution
 - Analysis and Reporting
- **Program Protection/System Assurance**
Cyber Security
 - Operational environment
 - Critical information

SERVICES

Background

- End of the Cold War Era has given way to the War on Terrorism
- Has Caused a Shift in Focus From Nuclear Deterrence To Nuclear Detection
- April 15, 2005 President Established the Domestic Nuclear Detection Office (DNDO) – Under DHS
- ManTech SRS Selected as Systems Engineering Support Program





DNDO Mission & Scope of SESP

- **Mission of DNDO**

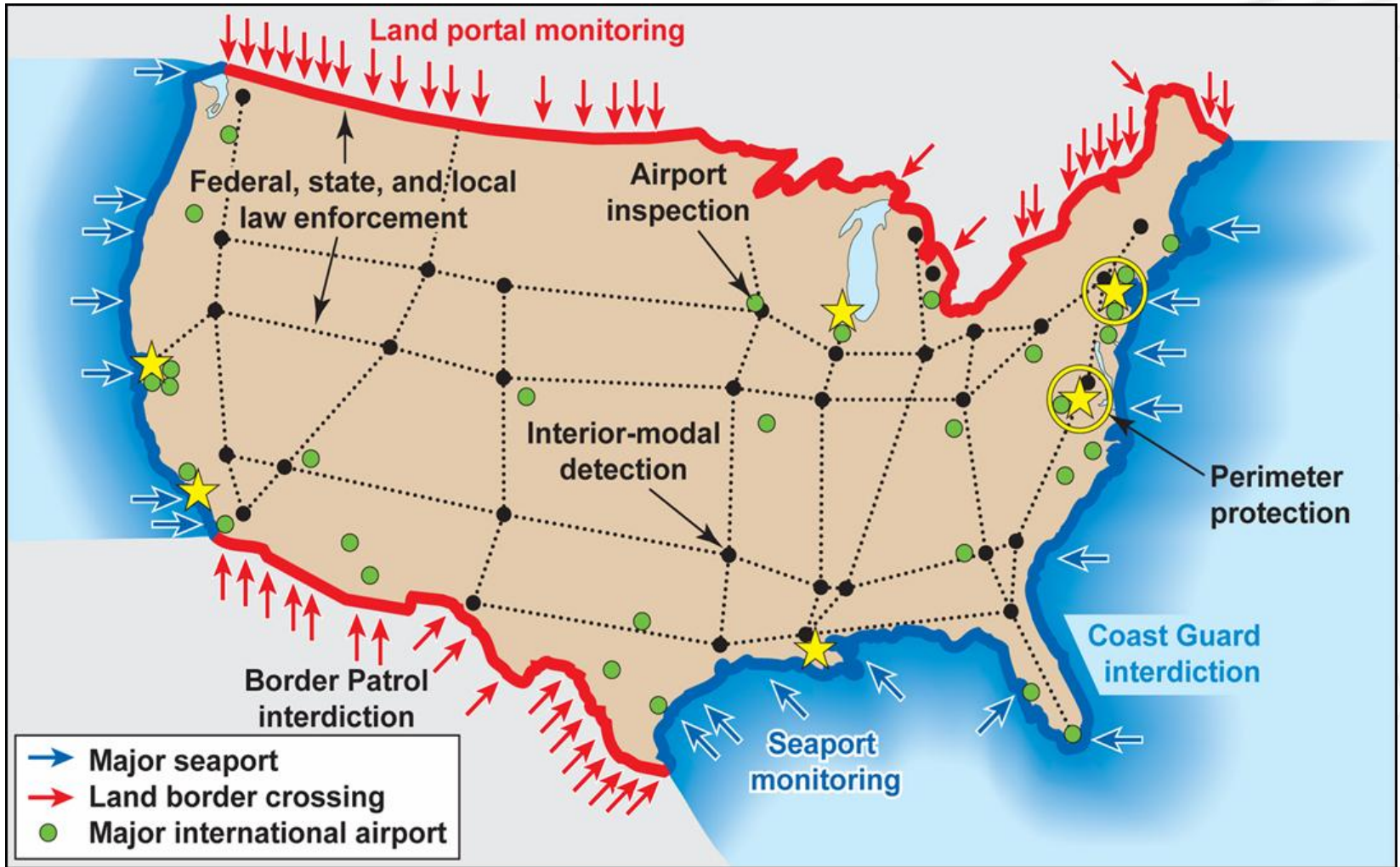
- DNDO is a jointly-staffed, national office founded on April 15, 2005, to improve the Nation's capability to detect and report unauthorized attempts to import, possess, store, develop, or transport nuclear or radiological material for use against the Nation, and to further enhance this capability over time

- **Scope of the SESP**

- Provide systems engineering support for:
 - Global nuclear detection and reporting architecture
 - User needs and requirements development
 - Program Management and Acquisition support
 - Systems Engineering Process Development
 - Detection System design, integration and test



DNDO Mission Challenge



DNDO Challenges Executing Rad/Nuc Testing

Challenge	Solution
<ul style="list-style-type: none"> • No T&E Rad/Nuc Executing Agent 	<ul style="list-style-type: none"> • Combined Test Team
<ul style="list-style-type: none"> • Field systems quickly 	<ul style="list-style-type: none"> • Rapid-cycle test framework
<ul style="list-style-type: none"> • Lack of detection system standards 	<ul style="list-style-type: none"> • Standards Program "GRaDER"
<ul style="list-style-type: none"> • Access to high fidelity sources 	<ul style="list-style-type: none"> • RNCTEC Facility • Rail Test Center • Maritime Test Bed
<ul style="list-style-type: none"> • Operationally relevant testing 	
<ul style="list-style-type: none"> • Threats in operational environment 	



No T&E Rad/Nuc Executing Agent

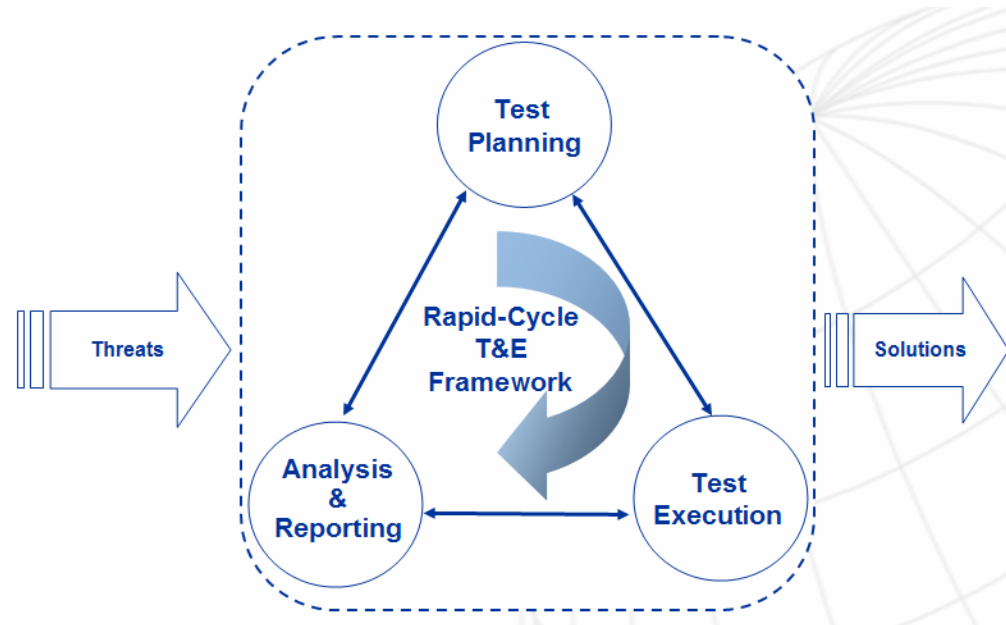
- **DNDO has created a Combined Test Team to meet the Rad/Nuc T&E challenge**
- **Combined Test Team:**
 - **DHS Organizations (DNDO, FEMA and CBP)**
 - **National Institute of Standards (NIST)**
 - **John Hopkins University/Applied Physics Lab (JHU/APL)**
 - **DOE Labs (Savannah River, Los Alamos, Pacific NW Lab))**
 - **Nevada Test Site (NTS)**
 - **Industry (ManTech)**



Field Solutions Quickly

Test Documentation (DNDO OI-1)

- **Test Planning Phase**
 - Test Management Plan
 - Test & Evaluation Master Plans (TEMPS)
 - Test Plans
 - Analysis Plans
 - Data Collection & Validation Plans
- **Test Execution Phase**
 - Test Procedures
 - Real Time Data Validation
- **Test Reporting Phase**
 - Data Analysis
 - Reporting (Tech/Peer Reviews)

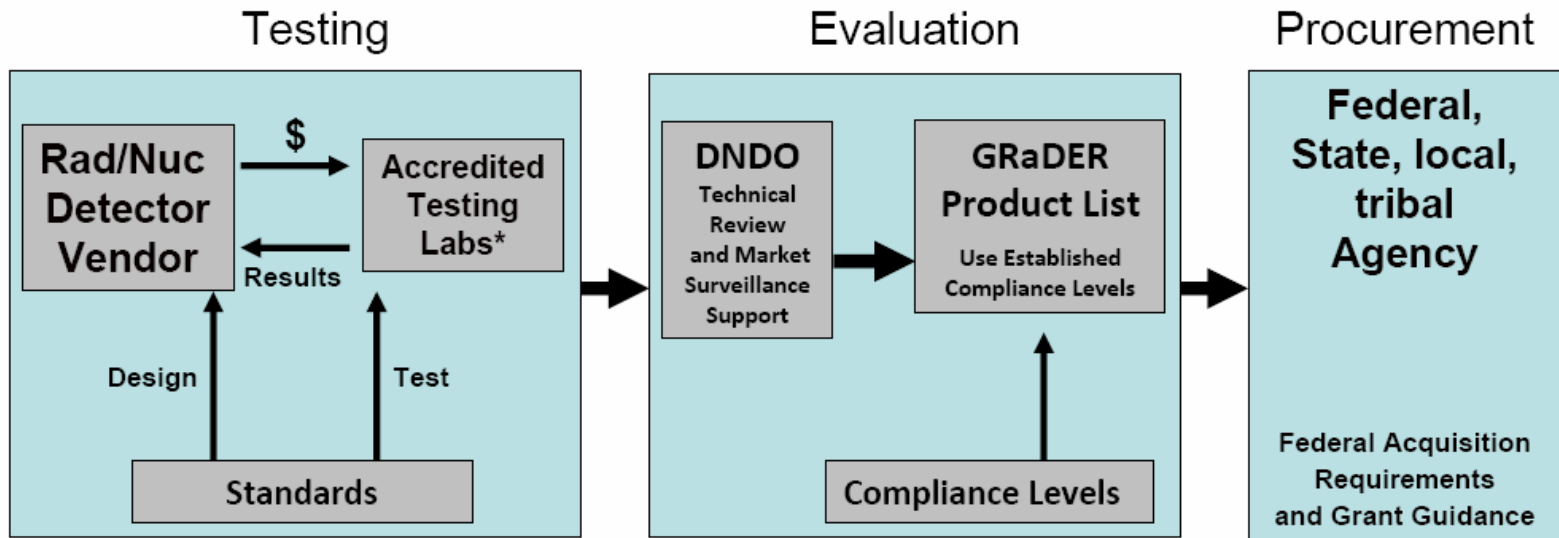


CONTINUOUS EVALUATION OF TEST EXECUTION RESULTS AGAINST EACH PHASE TO INCREASE EFFICIENCY AND EFFECTIVENESS

Lack of Detection System Standards—GRaDER Program

Mission for Graduated Radiological/Nuclear Detector Evaluation & Reporting Program

- Identify radiation detection products that satisfy standards and DHS Mission



Objectives:

- Provide infrastructure for the collection of high integrity test data
- Standardize instrument testing and presentation of test results to assure valid comparisons and easily interpreted results



Operationally Relevant Testing

- **Radiation/Nuclear Countermeasures T&E Complex**
 - Location: Nevada Test Site
 - Capabilities: Test with high fidelity threat sources
- **Maritime Test Bed**
 - Location: Savannah Rivers National Lab
 - Capabilities: Test small maritime craft in operational like conditions
- **Rail Test Center**
 - Location: Tacoma, WA
 - Capabilities: Test intermodal rail without impeding flow of commerce

These Test Facilities Will Allow the Use of High Fidelity Targets in Operationally Relevant Locations Without Disrupting the Flow of Commerce



Successful DNDO Test Campaigns

- **Advanced Spectroscopic Portal (ASP) Test Campaign (Jan-Feb 07 & Jul-Aug 08)**

- Purpose: DNDO test to support the DHS Secretarial certification for ASP Deployment and to support algorithm development
- Description: Test of ASP prototype systems alongside currently deployed PVT system against high fidelity threat objects in various configurations.



- **ASP New York Container Terminal (NYCT) Test Campaign (Jan-Feb 07)**

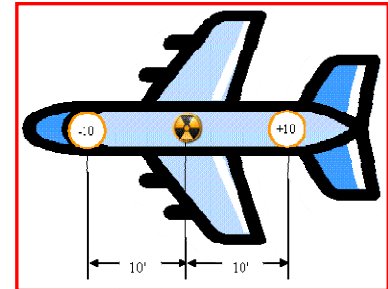
- Purpose: DNDO test to support the DHS Secretarial certification for ASP Deployment and to support algorithm development
- Description: Test of three ASP prototype systems in a stream of commerce at NYCT



Successful DNDO Test Campaigns (continued)

• International General Aviation (IGA) Test Campaign (Feb - Jun 08)

- Purpose: DNDO test to support the IGA radiation detection program
- Description: A test of the operational performance of the currently deployed GR 135 radiation detectors and possible alternatives in standard operating procedures and technologies against three sizes of aircraft



• Human Portable Radiation Detector System Test Campaign (Jan - Feb 08)

- Purpose: To assess the radiological/nuclear performance of HPRDS and COTS systems
- Description: Test of over 20 COTS/HPRDS handheld, backpack, and mobile detection systems in experimental non-operationally relevant scenarios to gather instrument performance independent of the user



Successful DNDO Test Campaigns (continued)

• Anole Test Campaign (Jan-Feb 2006)



- Purpose: Testing of Portable and Mobile Radiation detectors to support State and Local law enforcement procurement decisions
- Description: Tested over 30 COTS/GOTS handheld, backpack, and mobile detection systems in three operationally relevant scenarios which included screening, sweeping and portal/chokepoint operations



• Bobcat Test Campaign (Jul-Aug 2006)



- Purpose: Testing of Personal Radiation Detectors (PRDS) to support State and Local law enforcement procurement decisions
- Description: Tested over 30 PRDS in four operationally relevant scenarios, which included, pedestrian sweeping, screening, portal/chokepoint operations, and mobile sweeping



• Crawdad Test Campaign (Jul-Aug 2008)



- Purpose: Testing of Boat Mounted Radiation Detectors to support State and Local law enforcement procurement decisions and determine requirements for future systems
- Description: Tested 11 COTS & GOTS detectors in four operationally relevant scenarios at the Savannah River National Labs L-Lake



Summary

- Major national concern is potential Rad/Nuc terrorist attack
- DHS/DNDO is charged with improving nation's capability to detect and report such terrorist attempts
- DNDO is meeting the T&E challenges through formation of a combined test team and establishing rapid-cycle test framework
- The DNDO GRaDER program will evaluate detection systems and begin to standardize the radiation detection industry
- DNDO has established test facilities for various venues that has begun to make operational testing possible

Proven T&E processes coupled with advanced test ranges will help DNDO ensure operationally effective and suitable systems are deployed

