

# *Domestic Nuclear Detection Office (DNDO)*

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## **Radiological and Nuclear Detection Program Support**

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# *Is There a Nuclear Terrorism Threat?*

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*“[T]he gravest danger we face—nuclear terrorism.” [1]*  
*“In a strange turn of history, the threat of global nuclear war has gone down, but the risk of a nuclear attack has gone up. More nations have acquired these weapons. Testing has continued. Black markets trade in nuclear secrets and materials. The technology to build a bomb has spread. Terrorists are determined to buy, build or steal one....*  
*“[W]e must ensure that terrorists never acquire a nuclear weapon. This is the most immediate and extreme threat to global security.” [2]*



[1] Remarks of Barack Obama: Summit on Confronting New Threats, West Lafayette, Indiana, July 16, 2008.

[2] Barack Obama, Prague, April 5, 2009.



# The Threat

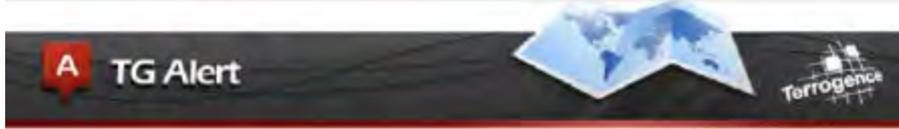
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- Al Qaeda has a stated mission to “...kill Americans and their allies, civilians, and military...”
- Mustafa Abul Yazeed (Al Qaeda’s leader in Afghanistan) stated on 6/21/09, “By God’s will, the Americans will not seize the Muslims’ nuclear weapons and we pray that the Muslims will have these weapons and they will be used against the Americans.”
- Sheikh al Fahd granted Osama bin Laden and other terrorists carte blanche permission to use weapons of mass destruction.
- Threat of a nuclear attack increases as more nations develop nuclear capabilities or lack proper control of them.
- Nature of the threat:
  - Improvised Nuclear Device (IND),
  - Radiological Dispersal Device (RDD) – aka “Dirty Bomb”, and
  - Radiological Exposure Device (RED)



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# Jihadist Revitalized Discussion on RDD's



Date 02-29-2012 TG-Alert 0141



## Jihadist Revitalized Discussion on Radiological Dispersal Devices (RDD)

Source	Shamikh
Type	Password Protected Jihadist Forum
Affiliation	Global Jihad

In mid-February 2012, jihadists regained interest in the possibility to produce and use radiological dispersal devices (RDD), commonly known as a 'dirty bombs'. The revitalized discussion specifies how, when and where an attack using such a bomb should take place.



Site Description: Shamikh or Shumikh al-Islam ('Supremacy of Islam') is presently, the most influential al-Qaeda-affiliated discussion board. The forum boasts high quality media productions and tutorials for manufacturing HMEs and IEDs. The forum hosts many lively discussions involving top technical experts and religious scholars.

First the writer presents the example of Swedish citizen Richard Handel, who was able to obtain radioactive elements such as americium, radium and beryllium and build a nuclear reactor at home. The writer presents an overview of dirty bombs, their composition, effects according to researches and tactical advantages. He suggests obtaining available radioactive materials such as Cobalt 60 and Cesium 137 from devices of food disinfection, medical equipment sterilization, and cancer treatments.



Then, the writer describes the manufacture of a gas/radiological device that is to be used in an abortive attack on a city's subway system. The device consists of milk powder can containing the radioactive material, and a conventional explosive charge filled in a gas-cylinder.



Illustrative images from the thread

The suggested targets for an attack were crowded urban



### IG Note

The operational importance of the shared knowledge in the discussion is that it introduces the idea of a CBRN attacks to jihadists. This is achieved by:

- Pointing out available sources of radioactive materials, Discussing products containing sensitive components, and places where sources can be found (hospitals).
  - Offering possible targets for an attack.
  - Stating the desired economic effect of an attack (Mass Disruption).
- Forum members correctly and realistically reflect the risks and chances of a radiological terror attack, and the extent of damage it may cause the enemy. Contrary to the misconception related to any nuclear substance, the writer clarifies that the main damage a radiological charge will cause will be economic. In this context, he recommends to the potential attacker to activate the charge in economic centers after activity hours, as the purpose is not mass killing (which will not happen anyway), but polluting the area with a radioactive substance, leading to its long term closure.
- TTPs for constructing and using the RDD.
- The participants discussed the initiation system and dispersion techniques, allowing more lethal effects. They also reviewed the Sarin attack on the Tokyo subway.

It is noteworthy, that in the past, online jihadists posted a manual for constructing an improvised chemical device called the *Mabshur*. The device consisted of a canister with two interior containers, one for cyanide, and the other for a hydrogen product, like hydrochloric acid, a seal between which, when broken by a fuse, creates and releases hydrogen cyanide. The device is similar to the one intended for use in the foiled 2003 plot to attack the New York City subway system with chemical weapons (CW).

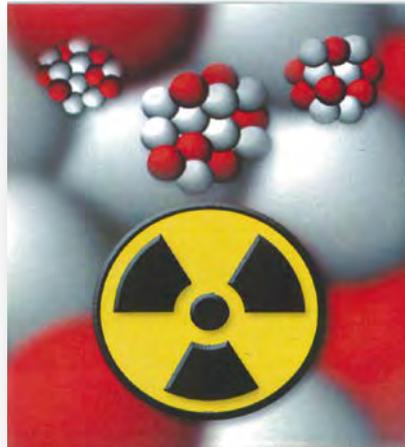
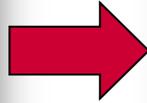


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# The Process



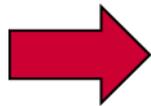
Human Element



Isotopes & Materials



Explosives & Fabrication



Pathway



Mass Destruction

# *Alaska Challenges & Concerns*

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**Distance from Interior U.S.**



**Size and Population**



**Vast and Porous Environment**



**Critical Infrastructure**



**Weather/Climate**



**Natural Disasters**



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# *Alaska Challenges & Concerns*

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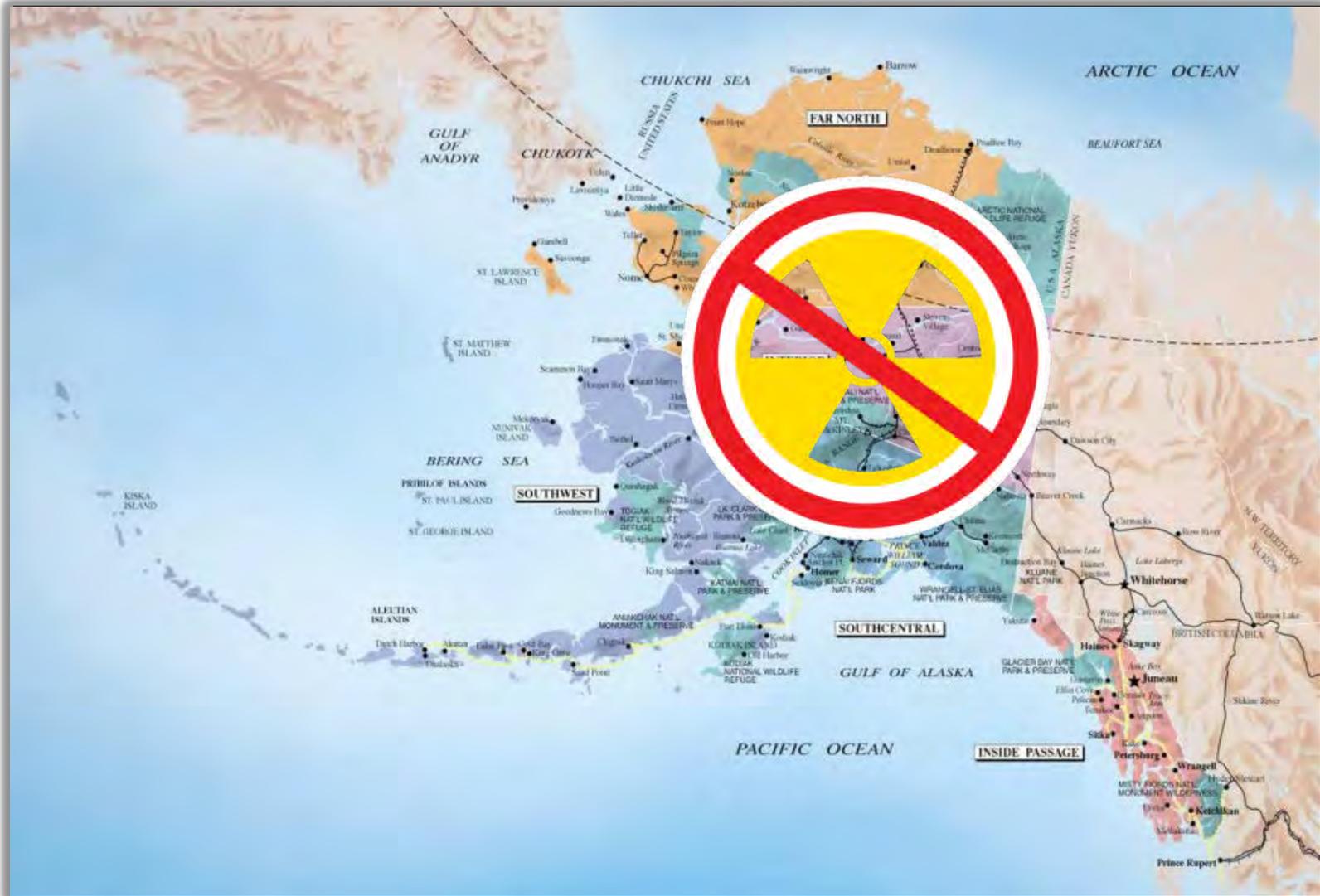


**Wildlife/Fish & Game**



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# The Solution



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# *Domestic Nuclear Detection Office (DNDO)*

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**DNDO was established on April 15, 2005 with the signing of NSPD 43 / HSPD 14 for the purpose of improving 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.**

- Develop the global nuclear detection and reporting architecture (GNDA).
- Develop, acquire, and support the domestic nuclear detection and reporting system.
- Characterize detector system performance before deployment.
- Facilitate situational awareness through information sharing and analysis.
- Establish operational protocols to ensure detection leads to effective response.
- Conduct a transformational research and development program.
- Provide centralized planning, integration, and advancement of USG nuclear forensics programs.



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# ***DNDO: An Interagency Office***

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- DNDO is an interagency office composed of detailees and liaisons from the departments of Energy, Defense, Justice, State, the FBI and NRC
- Other DHS components such as the U.S. Coast Guard, Customs and Border Protection, and Transportation Security Administration provide detailees to DNDO.
- DNDO relies upon the national laboratories, academia, and private industry to conduct research that directly supports its mission.
- DNDO maintains strong relationships with Federal, State, Tribal and local entities to facilitate capabilities development.



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# “Left” of boom

Sequence of Actions



Left of boom

Right of boom



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# Phases of Emergency Management and Related RND Capabilities

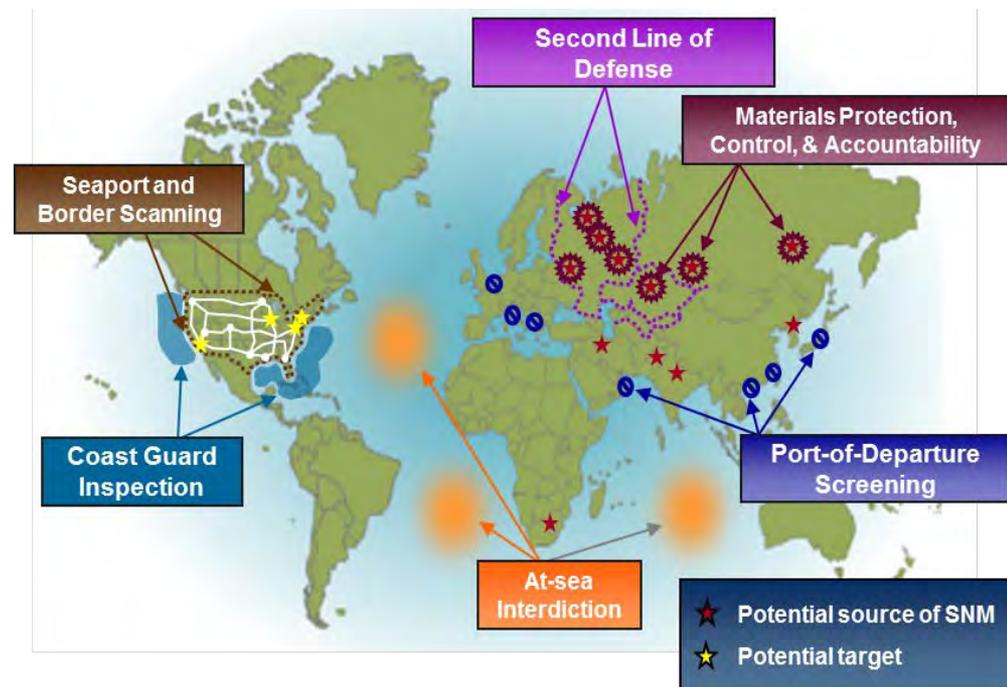
PREVENT	PROTECT	MITIGATE	RESPOND	RECOVER
Planning	Planning	Planning	Planning	Planning
Public Information and Warning	Public Information and Warning	Public Information and Warning	Public Information and Warning	Public Information and Warning
Operational Coordination	Operational Coordination	Operational Coordination	Operational Coordination	Operational Coordination
Forensics and Attribution	Access Control and Identity Verification	Community Resilience	Critical Transportation	Economic Recovery
Intelligence and Information Sharing	Cybersecurity	Long-Term Vulnerability Reduction	Environmental Response / Health and Safety	Health and Social Services
Interdiction and Disruption	Intelligence and Information Sharing	Risk and Disaster Resilience Assessment	Fatality Management Services	Housing
Screening, Search and Detection	Interdiction and Disruption	Threats and Hazard Identification	Infrastructure Systems	Infrastructure Systems
	Physical Protective Measures		Mass Care Services	Natural and Cultural Resources
	Risk Management for Protection Programs and Activities		Mass Search and Rescue Operations	
	Screening, Search and Detection		On-Scene Security and Protection	
	Supply Chain Integrity and Security		Operational Communications	
			Public and Private Services and Resources	
			Public Health and Medical Services	
			Situational Assessment	



# Global Nuclear Detection Architecture (GNDA)

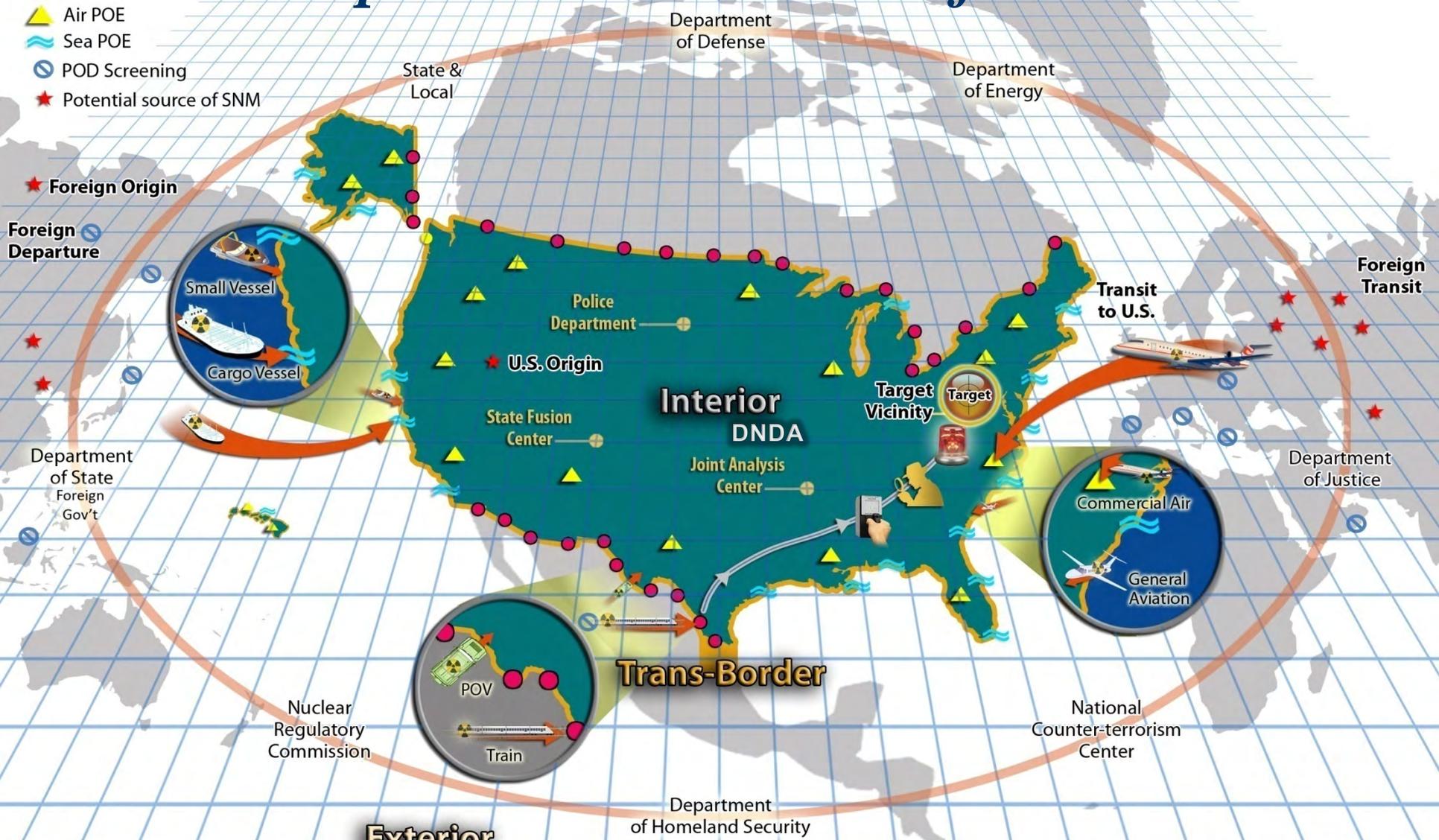
- A comprehensive set of detection systems and the associated resources and infrastructure that, taken together, are intended to provide a capability to prevent radiological and nuclear threats by all means available.
- *The idea of integration is key*
  - “Not just a pile of hardware”
- *The ideas of improvement and sustainment are also key*
  - A time-phased plan (or strategy) to reduce R/N risk
  - A series of steadily improving architectures
  - The plan for improvement is sometimes called *the architecture*

- Architecture is not simply:
  - A collection of programs
  - A list of detectors and their locations
  - A budget
  - A set of requirements or specifications
  - A set of functions or objectives
  - A pattern of information flows
  - Diagrams of organizational relationships



# Operational Realities of the GNDA

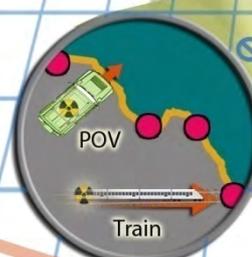
- Non-POE (Illegal Crossing)
- Land POE
- ▲ Air POE
- ⋈ Sea POE
- ⊖ POD Screening
- ★ Potential source of SNM



★ Foreign Origin

⊖ Foreign Departure

Department of State Foreign Gov't



Exterior

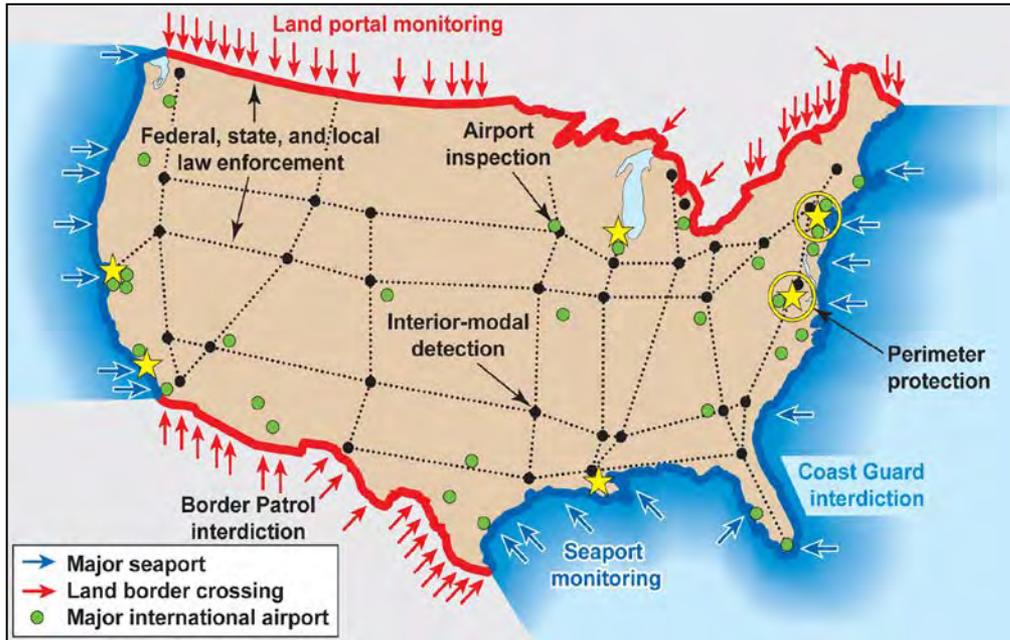
Trans-Border

Interior DNDA

**GNDA OV-1**  
 DNDO focuses on the domestic portion, but within a global context

INFORMATION EXCHANGE GRID

# GNDA: Domestic RND Implementation



U.S. DEPARTMENT OF  
HOMELAND SECURITY

## Homeland Security

# RND Capability Development Support Services

## DHS and DNDO Funded:

### ➤ Planning

- Program Strategy, Framework, CONOPS, and SOPs
- Stakeholder Working Group Facilitation and Collaboration

### ➤ Organization

- Operations Support, Resourcing, and Logistics Coordination
- Data collection and Intelligence Sharing

### ➤ Operations

- Day-to-Day and Special Event Planning Guidance
- Response and Alarm Adjudication Processes and Reach-Back
- Threat Detection and Interdiction

### ➤ Equipment

- Capability Assessment and Requirements Determination
- Deployment and Sustainment Plans
- Hands-on Demonstration and Training
- 24/7 Deployable Surge Assets (RND equipment)

### ➤ Workshops & Training

- Threat Awareness
- Rad/Nuc Posture
- Prevention and Response

### ➤ Exercises

- Methodology and Guidance
- Facilitation, Evaluation, and Control
- After-Action Reporting
- Improvement Plans



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# RND Program Support

## R/N Detection Assistance Delivery Process

Planning · Organization · Equipment · Training & Exercises · Operations



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# *Mobile Detection Deployment Unit (MDDU)*

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# Domestic Nuclear Detection Office

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