

U.S.NRC

UNITED STATES NUCLEAR REGULATORY COMMISSION

Protecting People and the Environment

NEW INITIATIVES IN MATERIALS SECURITY

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**Waste Management Symposia 2008
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NRC Mission

To license and regulate the Nation's civilian use of byproduct, source, and special nuclear materials to ensure adequate protection of

public health and safety, promote the common defense and security, and protect the environment.



Scope of Responsibility

- NRC's regulatory mission covers three main areas:
 - ✓ Reactors: commercial reactors for generating electric power and non-power reactors used for research, testing, and training
 - ✓ Materials: uses of nuclear materials in medical, industrial, and academic settings and facilities that produce nuclear fuel
 - ✓ Waste: transportation, storage, and disposal of nuclear materials and waste, and decommissioning of nuclear facilities from service

A Changing Environment

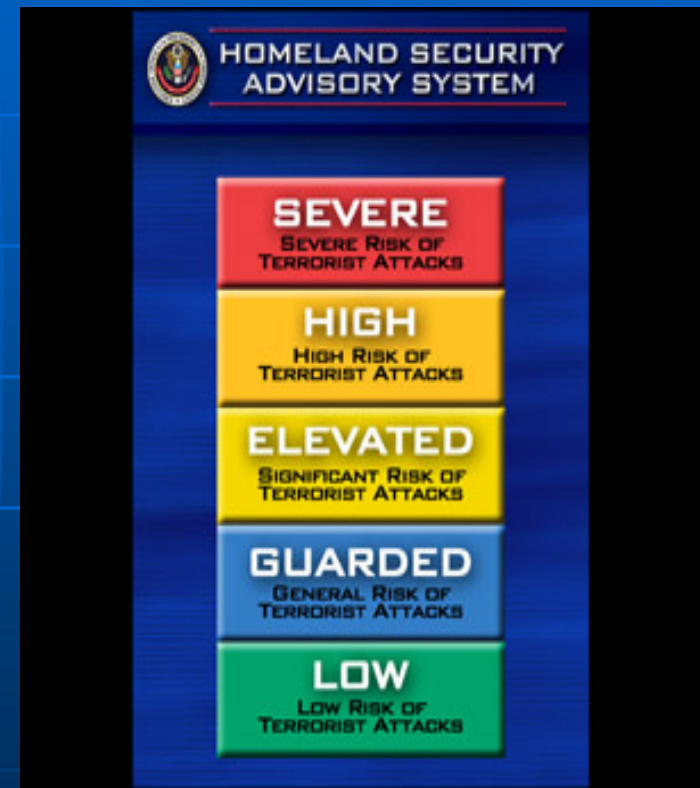
- National security is dominant concern

- Obtain appropriate balance between safety &
 - Security initiatives &
 - Operational activities

- Multiple layers of systems, infrastructures for various licensees

Deal with probabilities

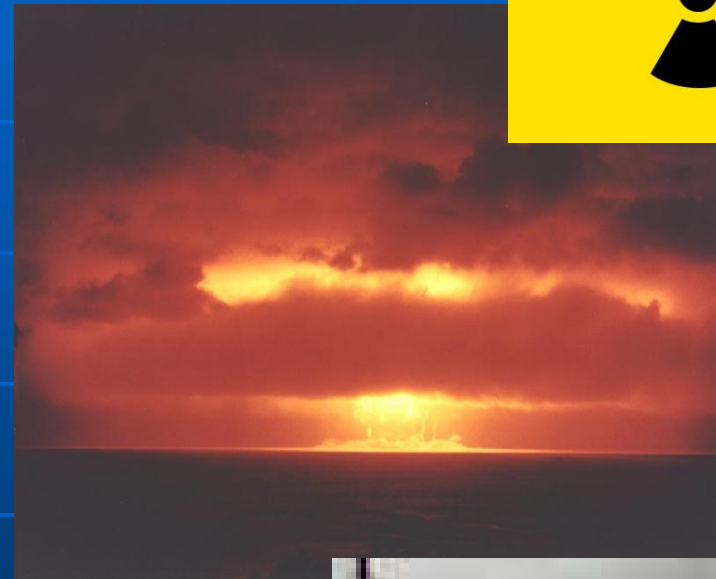
Not possibilities . . .



??? What If ???

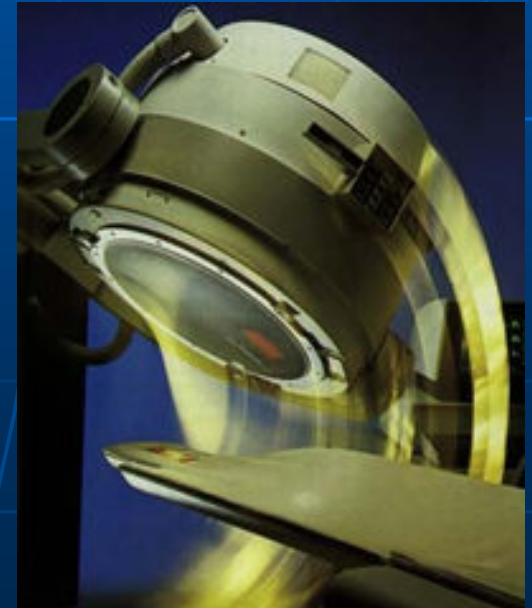
Effective Communication

- Not easy
- Sound bites galore
- Nuclear “phobia”
- Acceptability of risk
- Balance of cost & benefits
- Responsibility of the regulator, licensees and radiation protection professionals



Prioritized Licensee Groups:

- High priority- Panoramic irradiators; manufacturers / distributors
- Medium priority – medical and research facilities, radiography, well-logging, broad-scope licenses, self-shielded irradiators, open-field irradiators, and other licensees
- Low priority – Portable gauges



Selected IAEA Category 2 Thresholds Requiring Increased Security

Radionuclide	Category 2 Sources	
	TBq	Ci
Am-241/Be	0.6	16
Co-60	0.3	8.1
Cs-137	1	27
Ir-192	0.8	22
Pm-147	400	11,000
Sr-90 (Y-90)	10	270

Increased Security Measures

- Security Zone
- Control Access
- Monitor, Detect, Assess, and Respond
- Transportation Security
- Additional control to secure portable & mobile devices
- Liaison with Local Law Enforcement Agencies
- Background Investigations & Fingerprinting
- License Verification
- Document Retention
- Information Protection
- Orders/Legally binding requirements to more than 3000 licensees



Orders Issued

- Large Panoramic Irradiators Security Measures
 - ✓ **60 Orders issued 6/03 -- Inspections done**

- Manufacturing and Distribution Licensees Security Measures
 - ✓ **61 Orders issued 1/04 -- Inspections done**

- Transportation of Radioactive Material Quantities of Concern
 - ✓ **167 Orders Issued 07/05 — Inspections done**

- Orders for Increased Control Measures for other types of sources by categories of licenses
 - ✓ **1,098 NRC Orders & 1782 binding State requirements issued by 12/05 – Implemented 06/06 – Inspections done by NRC & States**

Security Inspection Results

- All 1st year Increased Control inspections completed
- NRC Information Notice (IN) 2007-16 issued May 2007
- Since IN 2007-16 was issued, ~ 50% of the NRC inspections performed resulted in violations
- Licensees misinterpreted or incompletely implemented requirements
- Common theme: failure to properly document actions or programs when implementing the Increased Controls.
- Examples of violations include:
 - Monitoring, Detecting, Assessing and Responding
 - Controlling Access:
 - Information Protection requirements

Energy Policy Act of 2005

- Established Radiation Source Protection and Security Task Force: cooperative effort with 14 Federal agencies; 2 State organizations
- Comprehensive analysis of the security of radiation sources in the U.S
- Directed NRC to contract with National Academy of Sciences to conduct a study on radiation source use and replacement
- Report to the President and Congress issued 8/06 and every 4 years thereafter

Radiation Source Protection and Security Task Force

- Need higher priority on international transport security
- Evaluate feasibility of using new and existing technologies to detect and discourage theft during transport
- Conduct a feasibility study on the possible phase out of CsCl in highly dispersible forms
- Further evaluate potential alternative technologies
- Expedite completion of fingerprint requirements in Act

National Source Tracking System

- Joint NRC/DOE 2003 report on Radiological Dispersal Devices recommended development of a national source tracking system
- IAEA *Code of Conduct* recommended establishment of a national registry
 - IAEA Category 1 and 2 sources (>54,000 sources)
 - NRC collecting information for Category 3 sources
 - Operational by Winter 2008
- U.S. Energy Policy Act of 2005 placed requirements for NRC to issue regulations establishing a mandatory tracking system

New Fingerprinting Requirements

- Orders were issued to NRC Increased Control licensees on Dec 5, 2007
- Licensees have 60 days to notify the NRC if they are unable to comply or if compliance is unnecessary
- Licensees have 90 days to fingerprint and approve a Trustworthiness and Reliability (T&R) Official
- Licensees will have 180 days to implement program
- 34 Agreement Stated Increased Control Licensees will receive similar requirements within 180 days

2007 GAO Investigation

- Formed Bogus Company and Obtained NRC License
- Altered NRC License
- Two Suppliers Agreed to Sell Material
- Parallel Attempt to Obtain Agreement State License Aborted When Notified of Site Visit

Short-Term Actions Taken

- Terminated the NRC License
- Stopped issuance of new NRC licenses until Interim Guidance was issued
- Mandatory pre-Licensing visits or meetings for new applicants
- Performed consequence assessment
- Coordinated with Federal and State Partners
- Retrospective exam ensure licensees are legitimate

Additional Recommendations

GAO

- Periodic Oversight of License Reviewers
- Explore Prevention of License Counterfeiting

Congress

- Regulate Category 3 More Closely
- Ensure Only Authorized Persons Get Radioactive Material

OIG

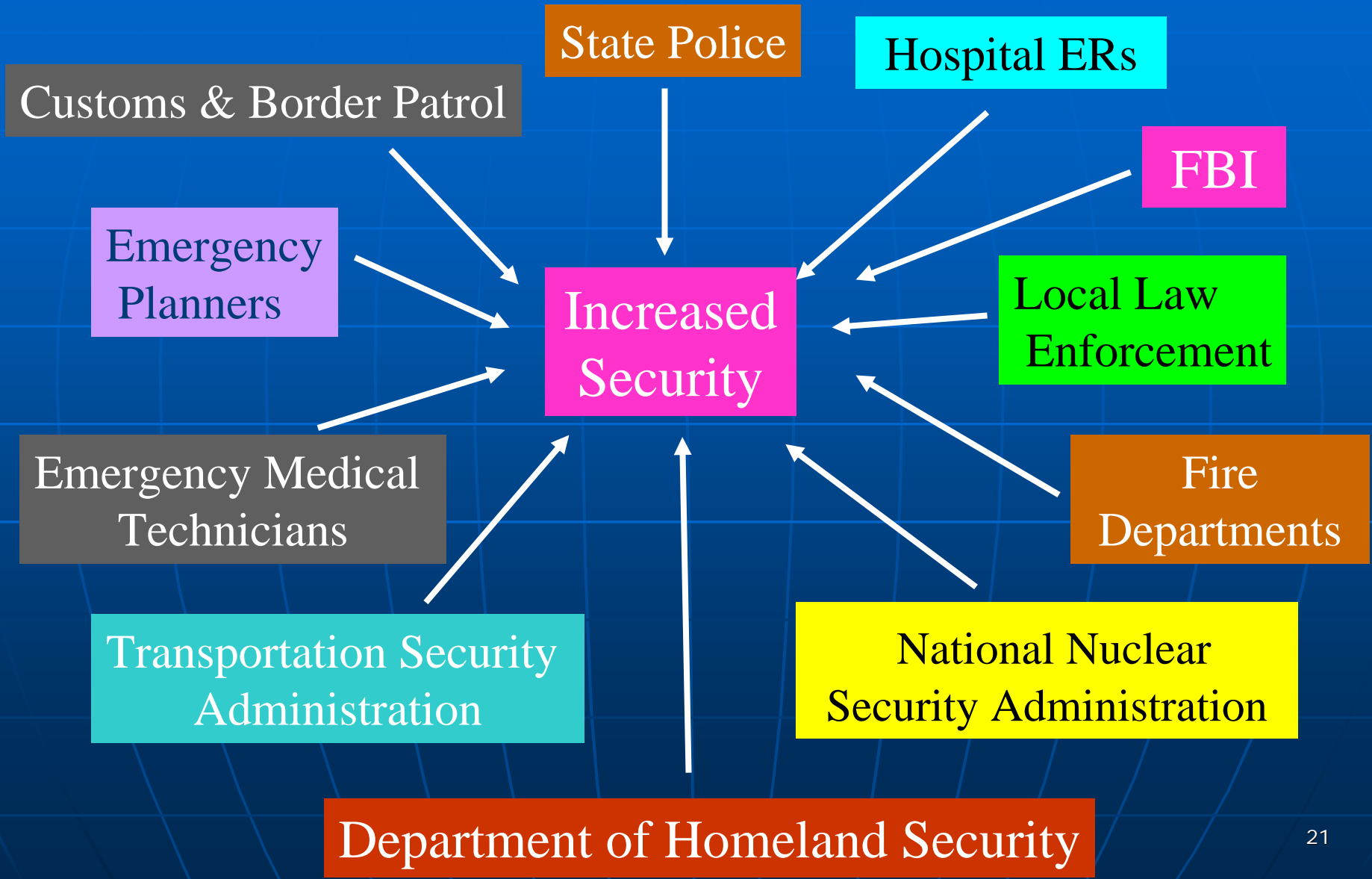
- Independent External Panel to
 - Identify vulnerabilities in material licensing
 - Validate the NRC's materials security efforts

Action Plan

- Independent, external 120-day review
- National Source Tracking System - Jan 2009
- Web-Based Licensing
- General Licenses and Outreach
- Pre-Licensing & Materials Working Groups
- Agreement State Partnership
- Comprehensive Internal Assessment

Regulatory Issue Summary (RIS 2008-02)

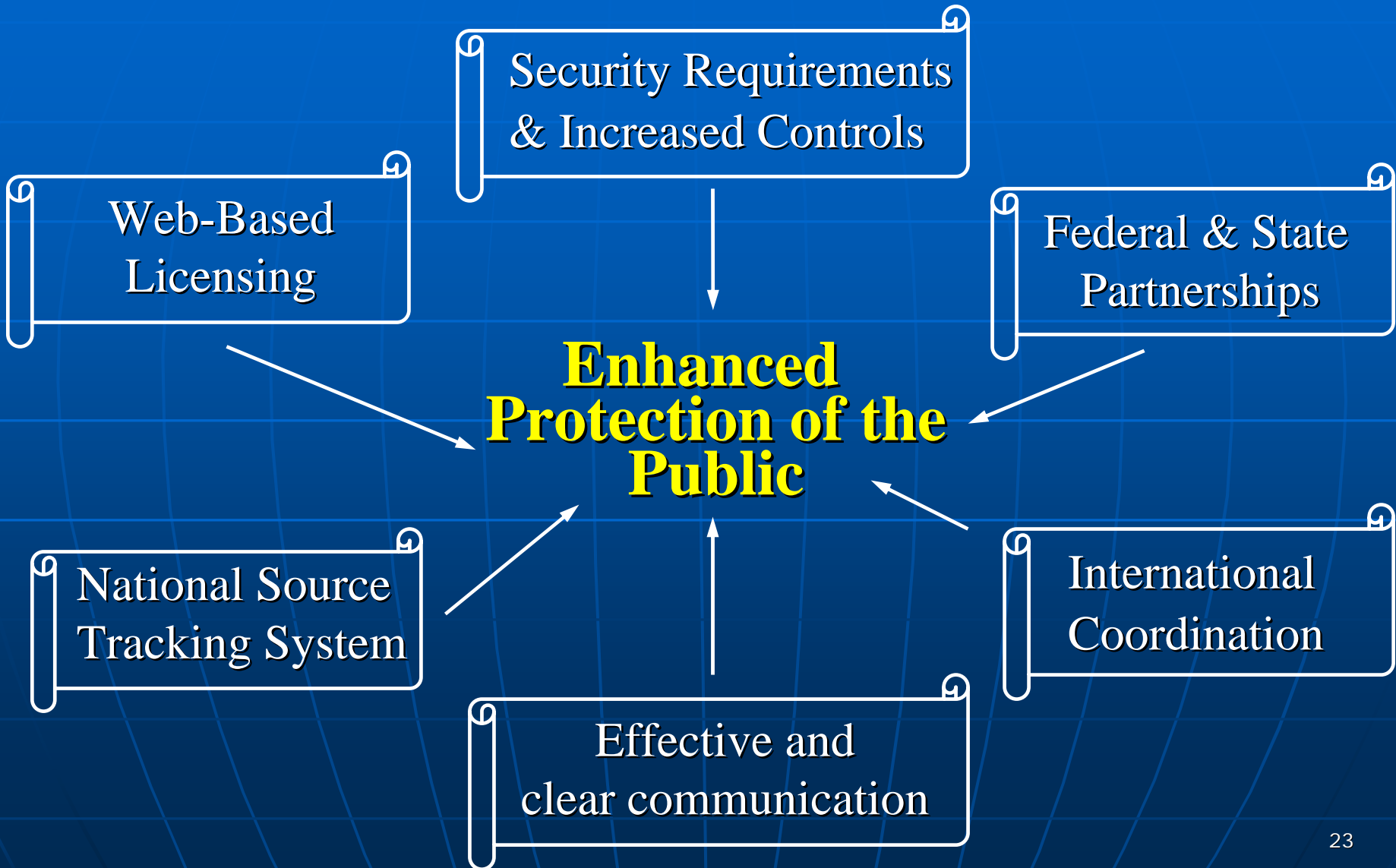
- Issued February 1, 2008
- Latest developments in materials security
- Highlights Energy Policy Act 2005, GAO report and National Academy pending Feb 2008 report
- New efforts with DHS, DOE/NNSA and manufacturers on additional security enhancements for Cs-137 irradiators
- Low-cost, easily implemented physical security improvements



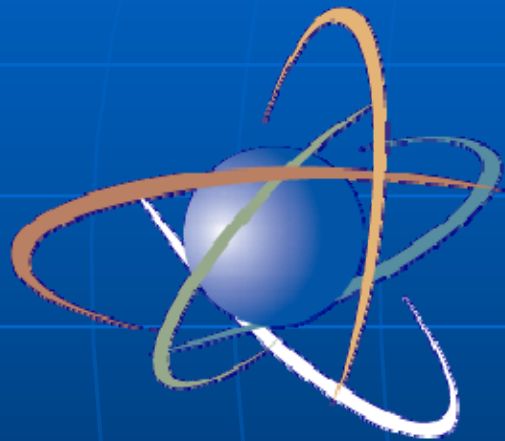
Enhanced State, Federal & International Partnerships

- Federal, State and local interface
- DHS' Domestic Nuclear Detection Office "Securing the Cities" Initiative
- DHS Protective Action Guides for RDDs & INDs
- DOE/NNSA's "Securing the Sources" Initiative
- International nuclear security outreach activities
 - IAEA *Code of Conduct on the Safety and Security of Radioactive Sources* & new IAEA Nuclear Security Series
 - Amended Convention on Physical Protection and Nuclear Materials
 - Trilateral initiatives with U.S.-Canada-Mexico

What Have We Achieved?



Thank you!



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