

Accuracy

Performance

Accountability



The Nuclear Materials Management and Safeguards System (NMMSS)

NMMSS

2014

Annual Users Training Meeting

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Increasing Security of Category 1 and 2 Material within the United States

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Overview

- NRC Mission
- Post September 11, 2001 Activities at NRC
- International and Domestic Efforts
- Security Requirements
- National Materials Management Program
- Conclusion

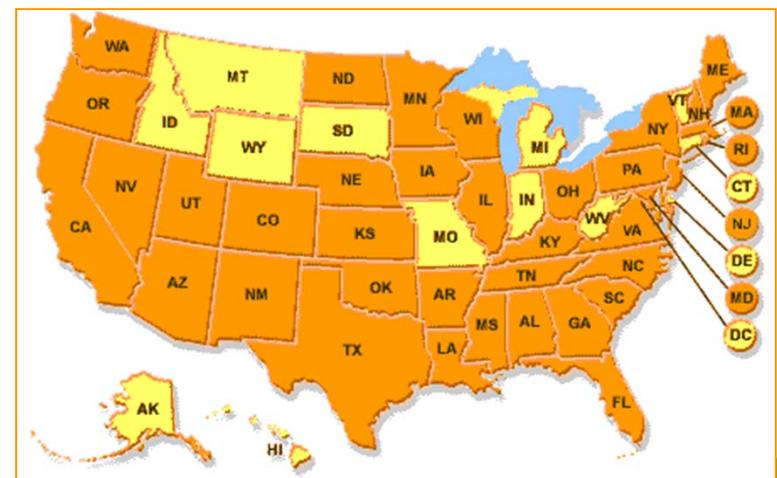
U.S. NRC Mission

Regulate the Nation's civilian use of byproduct, source and special nuclear materials

- Ensure adequate protection of the public health and safety
- Promote the common defense and security
- Protect the environment

Regulatory Authority

- NRC authority from Atomic Energy Act of 1954, as amended
- States can enter into agreement with NRC to regulate materials facilities
- 37 States have signed formal agreements with the NRC



Security Activities

NRC Focus Prior to September 11, 2001

- Security considered in safety programs
- Focus on
 - Unintentional unauthorized access
 - Common theft
 - Preventing unintended exposures
 - Not focused on malevolent acts
- Recognized need to improve control of risk-significant sources
- Limited sense of urgency

Security Activities

NRC Actions Since September 11, 2001

- Goal of maintaining health and safety unchanged
- Increased awareness of threat of malevolent use
- Increased international and domestic efforts to enhance source control and security

International and Domestic Security Efforts



Actions Since September 11, 2001

- Accelerated orphan source recoveries
- NRC/DOE Radiological Dispersal Device Report
- IAEA Code of Conduct on the Safety and Security of Sources
- IAEA categorization of sources
 - Category 1 - fatal within few minutes to an hour
 - Category 2 - fatal within hours to days
 - Category 3 - fatal within days to weeks, however unlikely
- Assistance to other countries
- Trilateral cooperation to enhance border security

Category 1 and 2 Quantities of Radioactive Material

Radioactive Material	Category 1 (Terabequerels)	Category 2 (Terabequerels)
Americium-241	60	0.6
Americium-241/Be	60	0.6
Californium-252	20	0.2
Curium-244	50	0.5
Cobalt-60	30	0.3
Cesium-137	100	1.0
Gadolinium-153	1,000	10.0
Iridium-192	80	0.8
Plutonium-238*	60	0.6
Plutonium-239/Be*	60	0.6
Promethium-147	40,000	400
Radium-226	40	0.4
Selenium-75	200	2.0
Strontium-90 (Y-90)	1,000	10.0
Thulium-170	20,000	200
Ytterbium-169	300	3.0



Post 9/11 NRC Security Actions

- Identified Priorities
- Immediate Actions – Security Advisories
- Immediate and Longer Term - Orders
- Security Assessments
 - Irradiator
 - Manufacturing and distribution
 - Medical facilities
 - Universities
 - Radiographers and well loggers
- National Source Registry
- Rulemakings

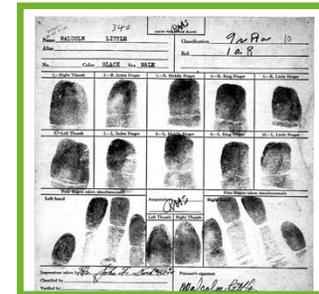


Security Requirements – Basis

- Prevent theft/diversion for malevolent use
- Prompt detection, assessment, and reporting
- Prompt law enforcement agency response
- Confirmation of shipping/receiving
- Additional security for sources in transit
- Changes in the threat environment or consequences of concern may indicate additional needs

Security Requirements – Administrative

- Background Investigations
 - Access limited, at all times, to approved individuals
 - Trustworthiness and reliability
- Documentation
 - Security plans
 - Transportation records
 - List of approved persons
- Information Protection
 - Access limited to those with a “need to know”

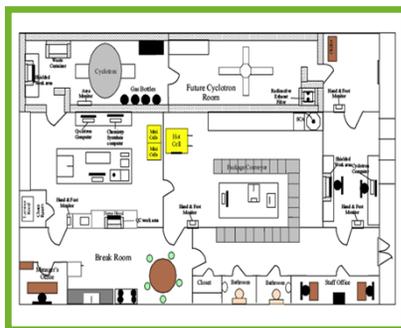




Security Requirements

- Security During Use or Storage

- Monitor, Detect, Assess and Respond
 - Identify secure zones or radioactive material locations
 - Physical security program capable of immediately detecting and assessing unauthorized access
 - Immediate response to an actual or attempted theft, sabotage, or diversion
 - Pre-arranged plan with law enforcement for assistance and armed response
 - Contact appropriate regulatory authority (NRC or Agreement States)





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Security Requirements - Transportation

	Cat 1	Cat 2
Coordinate Arrival Time and Confirm Receipt	✓	✓
Continuous and Active Monitoring of Shipment	✓	
Communication Center/Call-In, Backup Communication	✓	
Package Tracking Systems		✓
Capability to Summon En-Route Assistance	✓	✓
Plan and Coordinate Shipment with En-Route States	✓	
Advance Notification to NRC and En-Route States	✓	
Investigation of Past Due Shipments	✓	✓
Report Lost, Missing or Stolen Material	✓	✓
Notify Law Enforcement and NRC	✓	
Accompanying Individual/No Casual Stops/Surveillance	✓	
Training, Procedures and Instructions	✓	✓

Security Requirements - Portable and Mobile Devices

Additional Controls for Portable and Mobile Devices

- Two independent physical controls that form tangible barriers
- Other requirements apply to these devices as they are transported from job-site to job-site





10 CFR Part 37



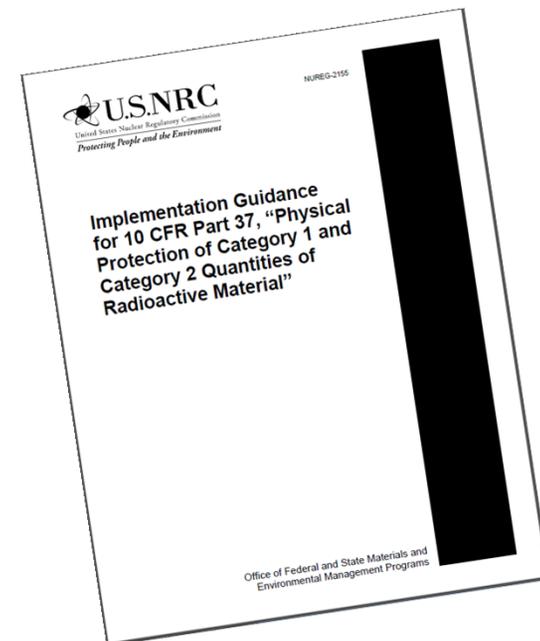
- Final rule approved March 9, 2012
- Published in Federal Register March 19, 2013
- Effective date May 20, 2013
- Compliance date for NRC licensees one year from publication – March 19, 2014
- Compliance date for Agreement States up to three years from publication to issue their requirements – March 19, 2016

10 CFR Part 37 Subparts

- Subpart A - General Provisions
- Subpart B - Access Authorization Program
- Subpart C - Security During use
- Subpart D - Transportation Security
- Subpart E - Reserved
- Subpart F – Records
- Subpart G - Enforcement

Part 37 Guidance

- NUREG-2155
 - Question and Answer format
 - Nearly 300 pages
- Best Security Practices Document



National Materials Management Program

- Tracks transactions of Category 1 and 2 sources by and among U.S. licensees
- In addition, tracks transactions of 4 additional sources (Actinium-227, Polonium-210, Thorium-228 and Thorium-229)
- Over 1,400 licensees and 80,000 sources
- Deployed December 2008
- Licensee reporting began January 2009
- Annual Inventory Reconciliation





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National Materials Management Program



- Replaces legacy NRC license tracking system
- Currently stores Category 1 and 2 licenses
- Capability to serve as nationwide license repository for over 20,000 licenses
- Needed to support license verification
- Deployed August 2012

National Materials Management Program



- LVS automates verification checks using WBL and NSTS data
- Users - regulators, government agencies, distributors/licensees
- Deployed May 2013

Conclusion

- Security Culture Change
- Security Requirements
- Continuous Assessment of Security Program Adequacy