



## RIC 2011 SECURITY - TRANSPORTATION SECURITY RULEMAKING ACTIVITIES AT THE U.S. NUCLEAR REGULATORY COMMISSION

Adelaide Giantelli  
U.S. Nuclear Regulatory Commission/Office of Federal and State  
Materials and Environmental Management Programs  
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## Security Rulemakings

### NRC Focus Prior to September 11, 2001

- Historically, NRC Transportation Security Regulations Focused on Highest Risk Radioactive Material, consisted of Special Nuclear Material (SNM) and Spent Nuclear Fuel (SNF)



NRC photo of empty container on truck

### NRC Actions Since September 11, 2001

- Domestically, reviewed materials transported by NRC licensees and re-evaluated security requirements considering:
  - applicable threats to shipments,
  - material considerations, and
  - magnitude of adverse consequences
- Internationally, participated in the development of the IAEA Code of Conduct on the Safety and Security of Radioactive Sources



DQ/OCRW photo of locomotive pulling cask.

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## Security Rulemakings

### NRC Actions Since September 11, 2001

- IAEA Code of Conduct
- Identified 16 radioactive materials and associated quantities that could be useful to a terrorist
- Three categories identified based on potential consequences if an individual remains in close proximity to unshielded source.
  - 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



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### 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

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### Security Rulemakings

#### NRC Actions Since September 11, 2001 (continued)

- Interim solution - enhance existing regulations through Orders
- Objectives of the Orders are enhanced control of material to
  - Prevent unauthorized access,
  - Prevent malevolent use of material, and
  - Mitigate consequences
- Orders were issued to NRC licensees that transport:
  - IAEA Code of Conduct Category 1 and 2 radioactive material and quantities
  - Spent Nuclear Fuel

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### Security Rulemakings

#### NRC Ongoing Activities

- Orders are an interim measure
- Long term approach is to enhance transport security through public rulemaking
- Rulemaking process in progress for
  - Physical Protection of Category 1 and 2 material
  - SNF Transportation Security

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## Security Rulemakings

### Objectives of In-Transit Security

- Prevent theft and/or diversion for malevolent use
- Prompt detection, assessment, and reporting
- Prompt LLEA response

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## Security Rulemakings

### Proposed Rule, Physical Protection of Byproduct Material, 10 CFR Part 37



- Applicable to Category 1 and 2 Quantities of Radioactive Material and small quantities of SNF
- Proposed Rule Published June 15, 2010
  - Considered Security Concepts and Lessons Learned from past Orders
  - Stakeholder feedback from public meetings and comments on preliminary draft rule language
- Requirements proposed for
  - Facility Security
  - In-Transit Security
  - Access Authorization
- Comment period closed January 18, 2011

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## Security Rulemakings Proposed 10 CFR Part 37

- Licensee Verification
- Planning & Coordination
- Notifications & Communications
- Shipment Monitoring



DOE/OCRWM illustration

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### Security Rulemakings Proposed 10 CFR Part 37

- Drivers and Accompanying Individuals
- Procedures, Training and Control of Information
- Background Investigations
- Additional Requirements for Portable and mobile devices




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### Security Rulemakings

#### Proposed Rule, Physical Protection of Spent Nuclear Fuel in Transit

10 CFR 101.11 - Physical Protection of Spent Nuclear Fuel in Transit

**Section 101.11 - Physical Protection of Spent Nuclear Fuel in Transit**

(a) **General.** This section applies to spent nuclear fuel (SNF) shipments that are greater than 100 grams and greater than 100 rem/hr at 3 feet unshielded.

(b) **Applicability.** This section applies to SNF shipments that are greater than 100 grams and greater than 100 rem/hr at 3 feet unshielded.

(c) **Proposed rule Published, October 13, 2010**

- Considers security concepts and lessons learned from past security Orders
- Addresses, in part, Petition for Rulemaking from the State of Nevada (PRM-73-10)

(d) **Proposes enhanced requirements for**

- Preplanning and coordination of shipments
- Control and monitoring of shipments
- Trustworthiness and reliability of personnel

(e) **Comment period closes April 11, 2011**

- Applicable to SNF shipments >100 gram and >100 rem/hr @ 3 ft unshielded
- Proposed rule Published, October 13, 2010
  - Considers security concepts and lessons learned from past security Orders
  - Addresses, in part, Petition for Rulemaking from the State of Nevada (PRM-73-10)
- Proposes enhanced requirements for
  - Preplanning and coordination of shipments
  - Control and monitoring of shipments
  - Trustworthiness and reliability of personnel
- Comment period closes April 11, 2011

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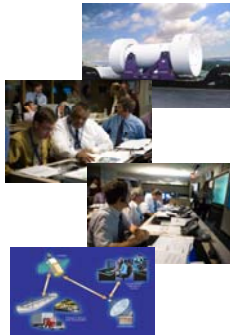
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### Security Rulemakings Proposed 10 CFR 73.37

- Planning & Coordination
  - Coordination with States
- Notifications & Communications
- Continuous & Active Shipment Monitoring



DOE/OCRWM Illustration

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### Security Rulemakings Proposed 10 CFR 73.37

- Armed Escorts
- Procedures, Training and Protection of Information
- Background Investigations



DOE/OCRWM Photo of PA police walking along side rail shipment




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### Security Rulemakings



#### Next Steps

- Evaluate Rulemaking Comments
- Prepare Final Rules for Commission Approval

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## Questions?

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**RIC 2011  
NATIONAL SOURCE TRACKING SYSTEM  
U.S. NUCLEAR REGULATORY COMMISSION**

Adelaide Giantelli  
U.S. Nuclear Regulatory Commission/Office of Federal and State  
Materials and Environmental Management Programs  
March 10, 2011

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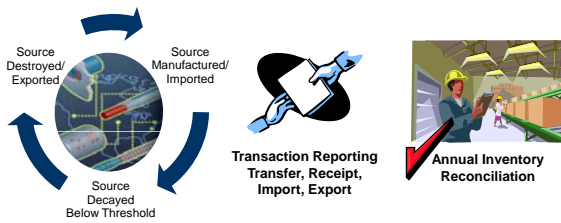
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**NSTS Overview**

**Source Life Cycle**



The relevant regulations that discuss the NSTS are found in 10 CFR § 20.2207 and state that each licensee who manufactures, transfers, receives, disassembles, or disposes of a nationally tracked source must complete and submit a National Source Tracking Transaction Report.




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**Nationally Tracked Source Thresholds**

Radioactive Material	Category 1 (Tkg)	Category 1 (G)	Category 2 (Tkg)	Category 2 (G)
Actinium-227	20	540	0.2	5.4
Americium-241	60	1,600	0.6	16
Americium-241/Be	60	1,600	0.6	16
Californium-252	20	540	0.2	5.4
Cobalt-60	30	810	0.3	8.1
Curium-244	50	1,400	0.5	14
Cesium-137	100	2,700	1	27
Gadolinium-153	1,000	27,000	10	270
Iridium-192	80	2,200	0.8	22
Plutonium-238	60	1,600	0.6	16
Plutonium-239/240	60	1,600	0.6	16
Polonium-210	60	1,600	0.6	16
Promethium-147	40,000	1,100,000	400	11,000
Radium-226	40	1,100	0.4	11
Selenium-75	200	5,400	2	54
Strontium-90	1,000	27,000	10	270
Thorium-228	20	540	0.2	5.4
Thorium-229	20	540	0.2	5.4
Thulium-170	20,000	540,000	200	5,400
Ytterbium-169	300	8,100	3	81




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**Questions?**

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