SAND2012-8760P

National Nuclear Security Administration

Office of Nonproliferation and International Security (NIS)

- **Safeguard and** material to prevent its diversion, theft and sabotage.
- **Control** the spread of WMD-related material, equipment, technology and expertise.
- Negotiate, monitor and **verify** compliance with international arms control and nonproliferation treaties and agreements.
- Develop and implement DOE/NNSA arms control and nonproliferation **policy** to reduce the risk of weapons of mass destruction.

INFCIRC/225/Revision 5:

New and Strengthened Guidance for the Physical Protection of Nuclear Materials

SAND2012-XXXX Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.

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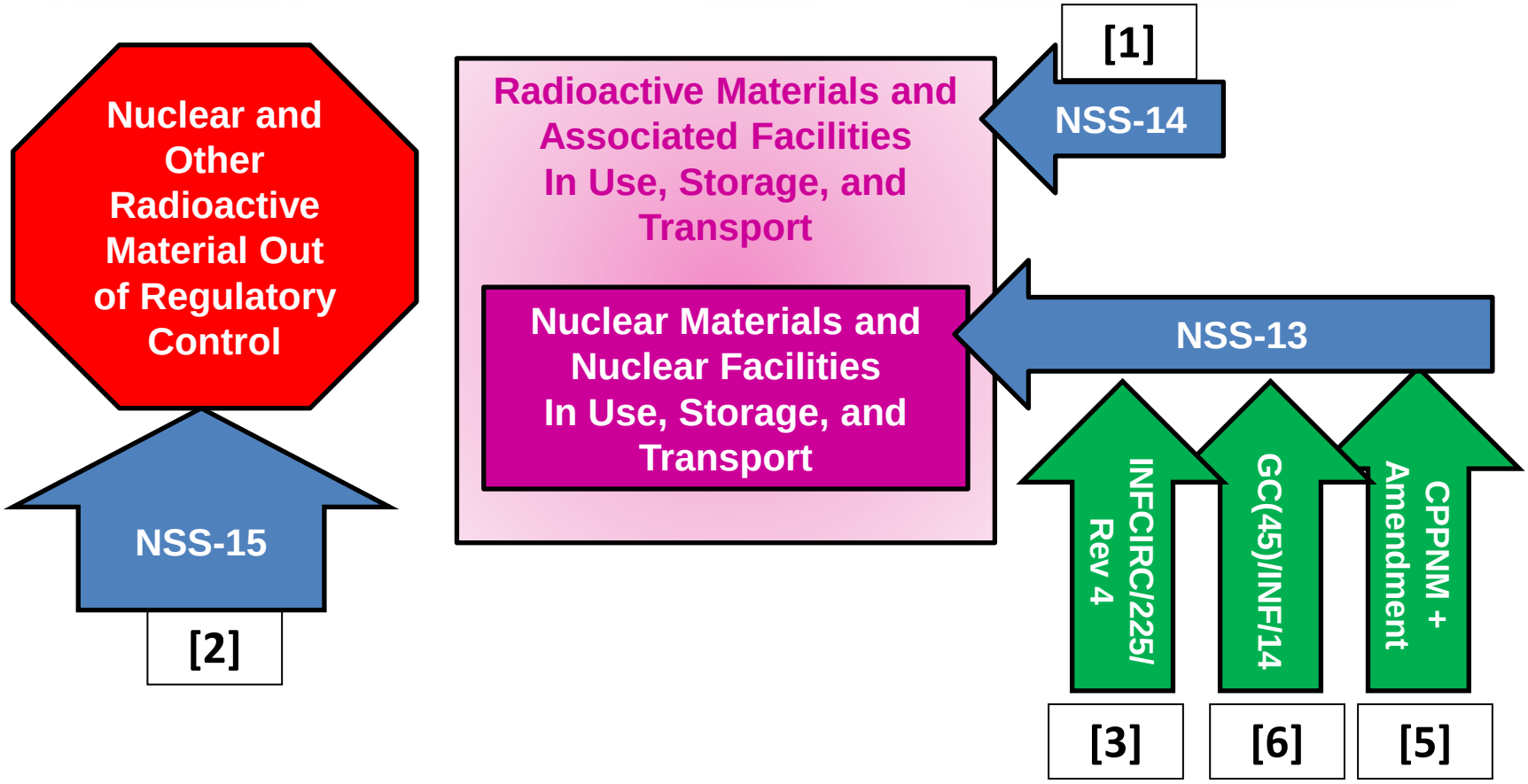
Revision 5 Background

- INFCIRC/225 has been the de facto international standard for the physical protection of nuclear material and nuclear facilities since 1975
- Revision 5 is the first revision since 9-11-2001 and the associated increased concerns about international nuclear terrorism
- The USG, led by the DOE/NNSA/NA-241 Office of Nuclear Safeguards and Security, led the 5-year effort to develop this revised guidance document
- The purpose of this briefing is to provide executives, leaders, and managers with a quick overview of the major enhancements in INFCIRC/225/Revision 5

Putting it All Together

- Part of the IAEA Nuclear Security Series
- A Whole New Structure
- Changes in Definitions
- Distinct Objectives
- Defining a State's Physical Protection Regime
- Protection Against Unauthorized Removal
- Location and Recovery
- Protection Against Sabotage
- Mitigation/Minimization of Consequences
- Transportation Security

References in INFCIRC/225 Revision 5



[4] International Legal Framework for Nuclear Security

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Revision 5 and 4 Structure Comparison

Revision 5 (2011)

1. Introduction
2. Objectives (now 4)
3. Elements of a State's Physical Protection Regime
4. Unauthorized Removal of Material in Use and Storage (Includes categorization of material and the addition of measures to locate/recover missing/stolen material)
5. Sabotage of Facilities and Material in Use and Storage (Includes addition of process for graded measures for protection against sabotage and measures to mitigate/minimize consequences)
6. Unauthorized Removal and Sabotage of Nuclear Material During Transport (Includes addition of measures to locate/recover and mitigate/minimize consequences)
7. Definitions (39)

Revision 4 (1999)

1. Introduction
2. Definitions (17)
3. Objectives (only 2)
4. Elements of a State's Physical Protection System
5. Categorization of Nuclear Material
6. Unauthorized Removal of Material in Use and Storage
7. Sabotage of Facilities and Material in Use and Storage
8. Nuclear Material During Transport

Definitions

Terms Deleted	• **Assessment** • **Intrusion Detection**	• **Patrol** • **Site Survey**
Terms Modified	• Central Alarm Station • Defense-in-Depth • Inner Area • Physical Barrier • Protected Area	• Response Forces • Sabotage • Transport Control Centre • Vital Area
Terms Added	• Access Delay • Competent Authority • Contingency Plan • Conveyance • Detection • Force-on-Force Exercise • Graded Approach • Insider • Limited Access Area • Malicious Act • Nuclear Facility • Nuclear Material • Nuclear Security Culture • Nuclear Security Event • Operator	• Performance Testing • Physical Protection Measures • Physical Protection Regime • Physical Protection System • Shipper • Stand-off Attack • System for Nuclear Material Accountancy and Control • Threat • Threat Assessment • Transport Control Centre • Two Person Rule • Unacceptable Radiological Consequences
Terms with No Change	• Design Basis Threat • Guard	• Transport • Unauthorized Removal

Terms of Note

- Insider
- Malicious Act
- Performance Testing
- Physical Protection Regime
- Stand-off Attack
- Unacceptable Radiological Consequences

Revision of Objectives

- **Revision 5** - The establishment of four distinct physical protection objectives
  - To protect against *unauthorized removal*…
  - To locate and recover missing *nuclear material*
  - To protect against *sabotage…*
  - To mitigate or minimize effects of *sabotage*
- **Revision 4**
  - To establish conditions which would minimize the possibilities for unauthorized removal of nuclear material and/or for sabotage; and
  - To provide information and technical assistance in support of rapid and comprehensive measures by the State to locate and recover missing nuclear material and to cooperate with safety authorities in minimizing the radiological consequences of sabotage.

Elements of A State's Physical Protection Regime

- State responsibility (Fundamental Principle A)
- International transport (Fundamental Principle B)
- Assignment of physical protection responsibilities
- Legislative and regulatory framework
  - Legislative and regulatory framework (Fundamental Principle C)
  - Competent authority (Fundamental Principle D)
  - Responsibilities of license holders (Fundamental Principle E)
- International cooperation and assistance

Elements of A State's Physical Protection Regime (continued)

- Identification and assessment of threats (Fundamental Principle G)
- Risk-based physical protection system and measures
  - Risk management
  - Graded approach (Fundamental Principle H)
  - Defence in depth (Fundamental Principle I)
- Sustaining the physical protection regime
  - Security culture (Fundamental Principle F)
  - Quality assurance (Fundamental Principle J)
  - Confidentiality (Fundamental Principle L)
  - Sustainability program
- Planning and preparedness for and response to nuclear security events (Fundamental Principle K)

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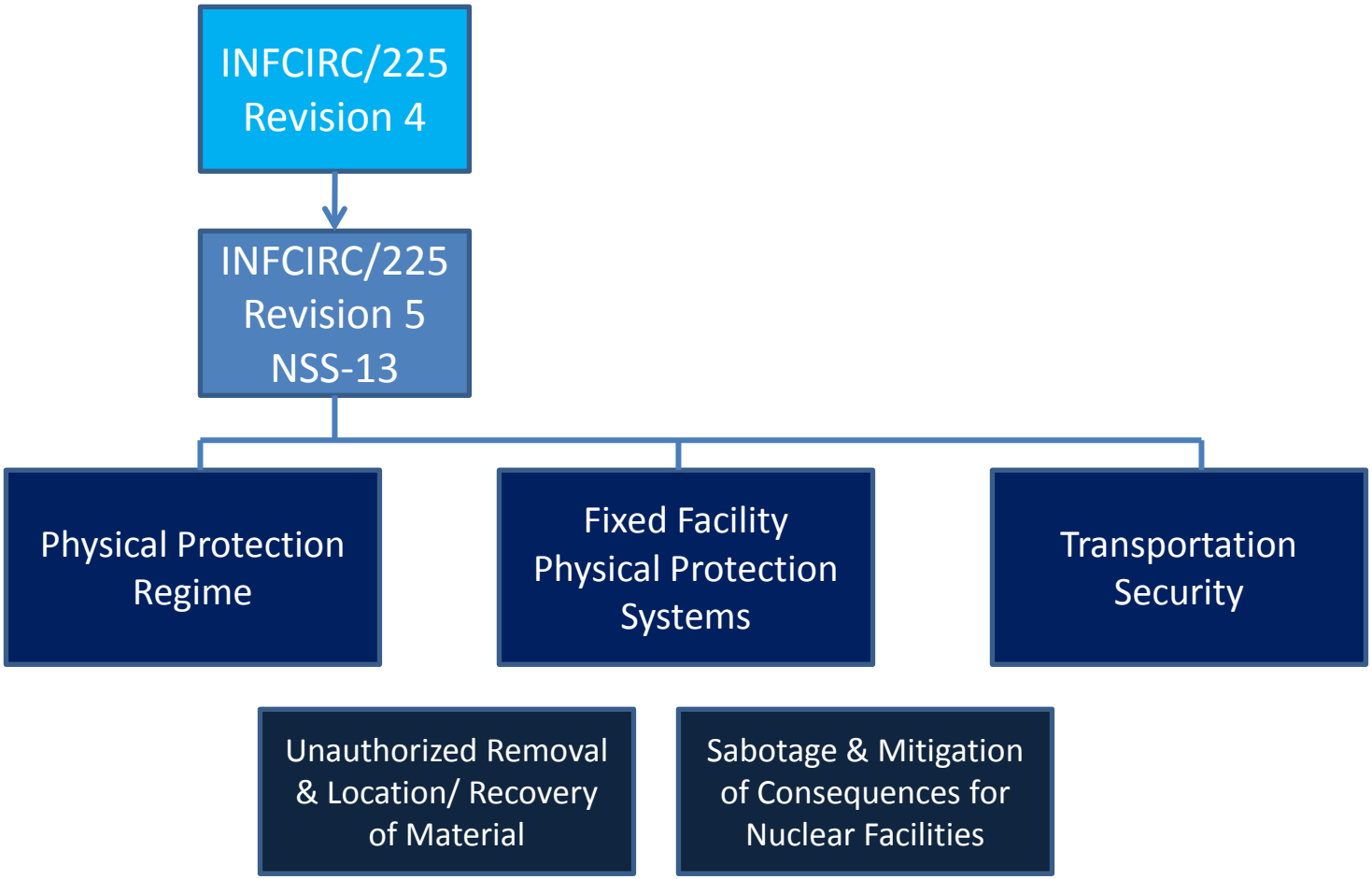
INFCIRC/225/Revision 5 Structure and Areas of Focus for Needs



INFCIRC/225/Rev.5 Workshop Target Audience

- What is audience's experience with INFCIRC/225?
  - Participated in development of Revision 5?
  - Operate under Revision 4?
  - New to Physical Protection?

- What role do they play in physical protection?
  - Government Official?
  - Regulator?
  - Operator?
  - Carrier/Shipper?

Workshop Options

1. INFCIRC/225/Rev.5 Differences and Impact Briefing (~ 2 hours)
2. General INFCIRC/225/Rev.5 Workshop (~ 2 days)
3. INFCIRC/225/Rev.5 Workshop Focused on Physical Protection Regime (~ 2 days)
4. INFCIRC/225/Rev.5 Workshop Focused on Protection Against Unauthorized Removal
    1. Category I, II, or III (~ 1 day)
    2. All Categories (~ 2 days)
5. INFCIRC/225/Rev.5 Workshop Focused on Protection Against Sabotage (~ 1 day)
6. INFCIRC/225/Rev.5 Workshop Focused on Protection of Nuclear Materials During Transport (~ 2 days)

Course durations vary depending on the depth of coverage

Option 1: Differences and Impacts Briefing

- New Scope
- New Structure
- Additional Recommended Requirements
- Expanded Recommended Requirements
  - Revision 4 Recommended Requirements
  - Revision 5 Recommended Requirements
  - Rationale for change
  - Impact of change

Option 2: General INFCIRC/225/Revision 5 Workshop

- Walk through the document
- Outline
  - Introduction
  - Definitions
  - Objectives of a State's Physical Protection Regime
  - Elements of a State's Physical Protection Regime fore Nuclear Material and Nuclear Facilities
  - Requirements for Measures Against Unauthorized Removal of Nuclear Material in Use and Storage
  - Requirements for Measures Against Sabotage of Nuclear Facilities and Material in Use and Storage
  - Requirements for Measures Against Unauthorized Removal and Sabotage of Nuclear Material During Transport

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Option 3: Workshop Focused on Physical Protection Regime

- Objectives of a Physical Protection Regime
- Elements of a Physical Protection Regime
  - Recommended Requirements
  - Consideration Questions

Outline

- State responsibility
- International transport
- Assignment of physical protection responsibilities
- Legislative and regulatory framework
  - Legislative and regulatory framework
  - Competent authority
  - Responsibilities of the licence holders
- International cooperation and assistance
- Identification and assessment of threats
- Risk-based physical protection system and measures
  - Risk management
  - Graded approach
  - Defence in depth
- Sustaining the physical protection regime
  - Security culture
  - Quality assurance
  - Confidentiality
  - Sustainability programme
- Planning and preparedness for and response to nuclear security events

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Option 4: Workshop Focused on Protection Against Unauthorized Removal

- Recommended Requirements organized by
  - Category of Nuclear Material
  - Protection Layers
  - Access
  - Detection, Delay, and Response
  - Other Requirements

Outline

- Responsibilities of the Licence Holder
- General Recommendations
- Recommended Requirements for Physical Protection Against Unauthorized Removal
  - In Use and In Storage
  - During Transport
- Location and Recover of Missing Nuclear Material

Option 5: Workshop Focused on Protection Against Sabotage

Outline

- Requirements of Licence Holders
- General Requirements
- Graded Approach
- Process for Design
- Requirements Against Sabotage
  - High Consequence Facilities Including Nuclear Power Plants
  - Requirements for Other Nuclear Facilities and Nuclear Material
- Mitigation and Minimization of Radiological Consequences of Sabotage

Option 6: Workshop Focused on Protection During Transport

Outline

- Types of Transport
- Types of Conveyances
- Transportation Terms
- Recommended Requirements
  - General
  - Common
  - By Category
  - Location and Recovery
  - Sabotage
  - Mitigation or minimization of Radiological Consequences from sabotage

Next Steps

- Which option is appropriate for your workshop?
- Length and schedule?
- Who will attend?
- Materials to be provided?