SAND2012-8778P

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.

International Nuclear Security Program:

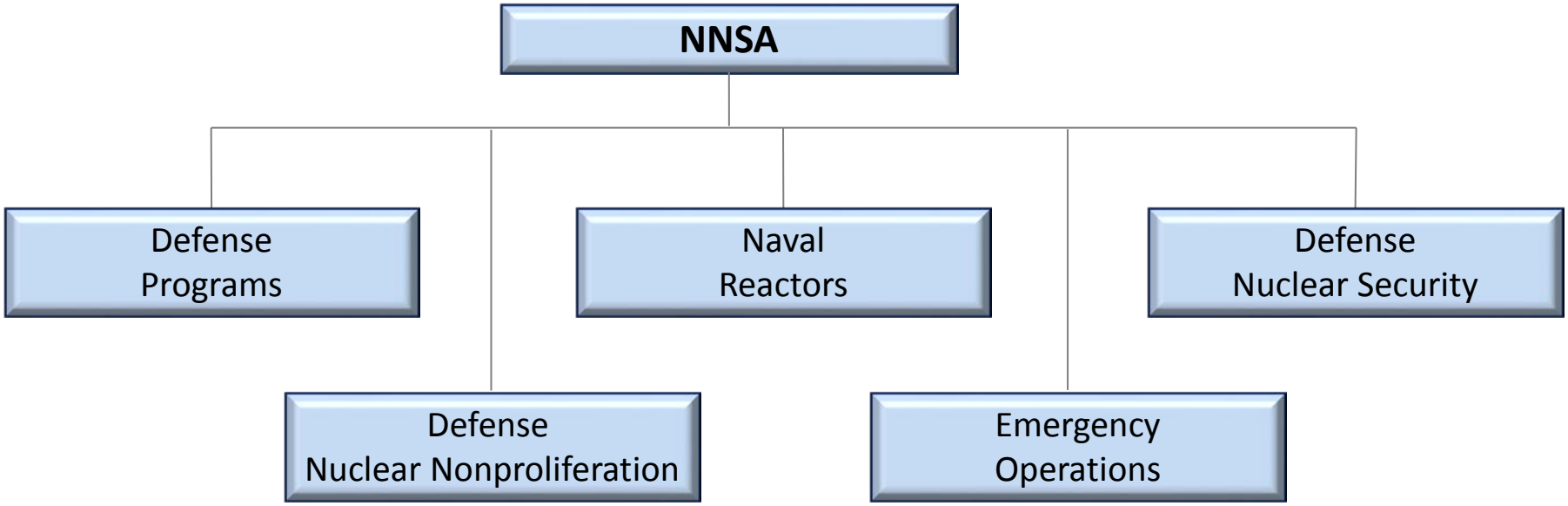
Strengthening Nuclear Security Globally

Office of Nonproliferation and International Security (NIS)

Nuclear Safeguards and Security

NNSA Role in International Nuclear Security

An Organizational Perspective



Direct Mission Areas

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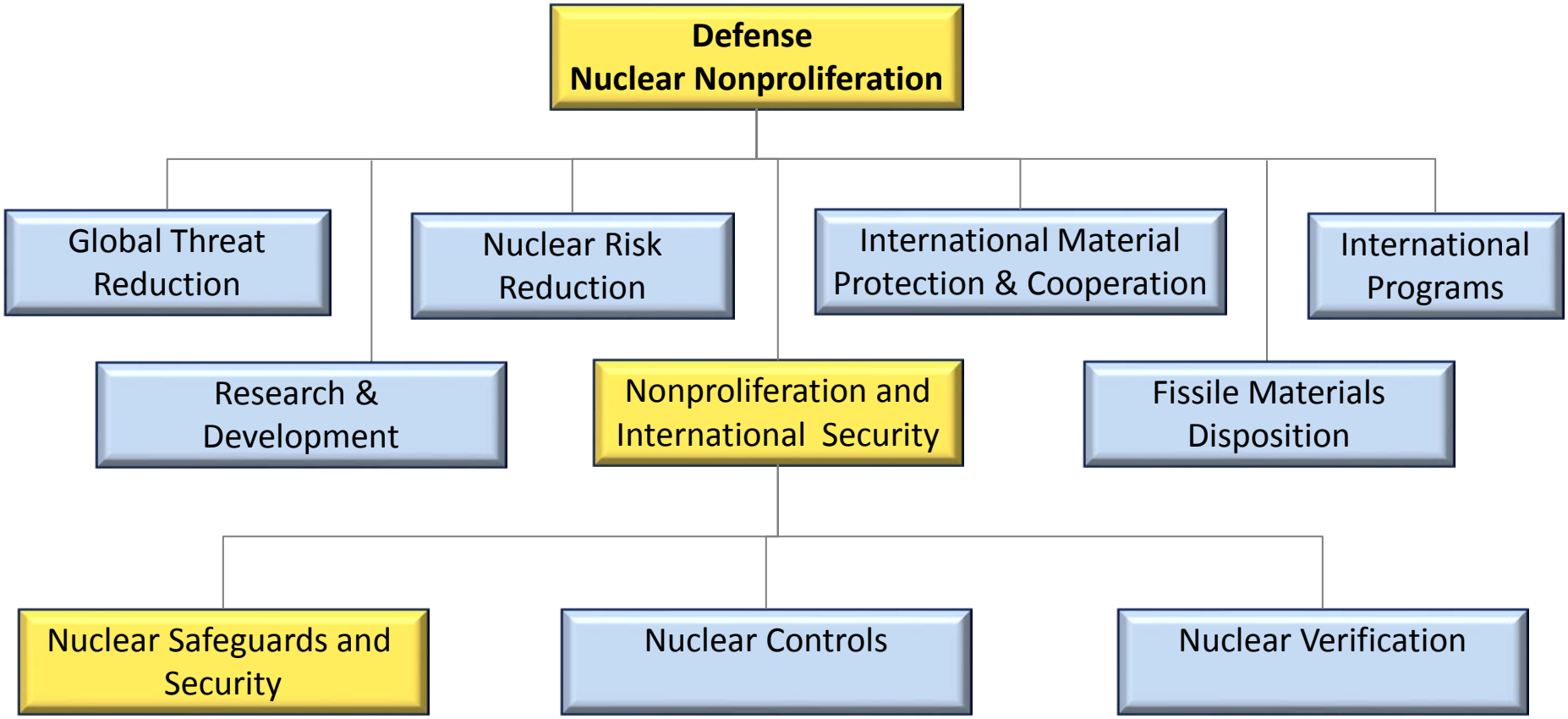
Nuclear Safeguards and Security

NNSA Role in International Nuclear Security

An Organizational Perspective continued…



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Nuclear Safeguards and Security

International Nuclear Security (INS) Program

Mission

Ensure the security of U.S. - obligated nuclear material at foreign facilities and engage domestic and international partners to strengthen the physical protection of all nuclear material and nuclear facilities against theft and sabotage.

Program Goals

1. Lead bilateral ***assessment*** visits to ensure the physical protection of U.S. – obligated nuclear material at foreign facilities
2. Develop and implement ***policy*** and technical initiatives to strengthen nuclear security worldwide
3. Provide ***training*** to and strengthen ***engagement*** with bilateral and multilateral partners on physical protection of nuclear material and facilities

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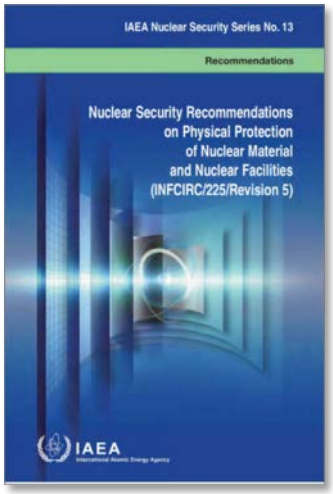
Nuclear Safeguards and Security

Bilateral Assessment Visits

- INS ensures adequate protection of U.S.-obligated nuclear materials worldwide by leading U.S. interagency teams to visit foreign sites with U.S.-obligated nuclear material provided for peaceful purposes.
  - The **1954 Atomic Energy Act (AEA), as amended**, provides the legal basis for bilateral physical protection cooperation.
  - These bilateral visits also fulfill the mandates of the 1978 **Nuclear Nonproliferation Act** and the **NRC 10 CFR 110.44** to verify adequate physical protection of such nuclear materials by these nations.
- Since 1974, the United States has conducted over 170 assessment visits in 48 countries.
- These visits provide opportunities to exchange information on best practices for securing nuclear material at facilities and while in transport.

Policy and Technical Initiatives

- INS has played a leading role in the development of internationally accepted physical protection recommendations, including:
  - The Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/225) – fifth revision published in 2011
  - Convention on the Physical Protection of Nuclear Material, as amended
- INS provides technical and policy expertise to IAEA Nuclear Security Series (NSS) document development



- INS also supports IAEA policy, meetings, and research, including:
  - Providing an expert to serve as a representative to the IAEA Director General's Advisory Group on Nuclear Security (AdSec)
  - Since 1978, supporting 45 missions in 27 countries through the IAEA's International Physical Protection Advisory Service (IPPAS)
  - Supporting the research projects of the IAEA's Nuclear Security Program on topics such as Security-by-Design, risk assessment, and infrastructure development

Training and Engagement

- DOE/NNSA's INS Program meets the statutory mandate put forth by the 1978 Nuclear Nonproliferation Act to provide physical protection training to all states that have or are expected to have nuclear material
  - Since 1978, INS has hosted the International Training Course on the Physical Protection of Nuclear Materials and Facilities.
  - Total physical protection training efforts done in collaboration with the IAEA include involvement in 134 courses for nearly 4000 students from 122 countries.

- INS also conducts bilateral physical protection collaboration with key countries:
  - Bilaterally, INS has conducted training and engagement in nearly 20 countries and provided physical protection training to over 500 foreign officials.
  - Currently engaging a number of countries including Argentina, Brazil, France, Japan, Republic of Korea, and the UAE, and exploring similar cooperation with other states.

National Nuclear Security Administration

Office of Nonproliferation and International Security (NIS)

- **Safeguard and Secure** nuclear material to prevent its diversion, theft and sabotage.
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INFCIRC/225/Rev.5

Background

- **The fifth revision of the International Atomic Energy Agency (IAEA) Nuclear Security Recommendations on "The Physical Protection of Nuclear Material and Nuclear Facilities" (Information Circular 225) was published in January 2011, following a five year international effort.**
  - DOE/NNSA's Office of Nonproliferation and International Security (NA-24) led U.S. efforts to develop this revised guidance document.
- **INFCIRC/225 has provided internationally accepted physical protection criteria since it was first published in 1975.**
  - Revised in 1977, 1989, 1993, 1999 and 2011
- **INFCIRC/225 recommendations are integral to legally binding agreements governing U.S. nuclear exports to nearly 50 countries.**
  - 1954 Atomic Energy Act Section "123 Agreements"
  - 1978 Nuclear Nonproliferation Act (NNPA)
  - Nuclear Regulatory Commission 10 CFR §110.44 Regulations
  - Nuclear Suppliers Group Part 1 Guidelines

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Major Changes in Scope and Structure

- **INFCIRC/225 was restructured to:**
  - Support the amended CPPNM
    - Now aligns with the 12 Fundamental Principles of Physical Protection and the four Physical Protection Objectives
  - Present recommendations for Category III, II and I nuclear material in an additive manner
- **Scope has been expanded to:**
  - Include new sections on the *rapid recovery of missing nuclear material* and *mitigation of sabotage*—two objectives of the amended CPPNM
  - Provide a process to define which nuclear materials and facilities require protection against sabotage

Topics Not Previously Addressed

- Risk Management;
- Locate and Recover missing material;
- Mitigate/minimize sabotage;
- Graded Approach (protection based on assessed threat and consequences);
- Cyber Security;
- Stand-off distance;
- Security Culture;
- Quality Assurance;
- Physical Protection Regime;
- Material Control and Accounting concepts; and
- Co-location of nuclear materials (consider entire inventory of a facility).

Topics Not Covered In Sufficient Detail in Previous Versions of INFCIRC/225

- Clarified use of the Design Basis Threat (DBT) and state's current evaluation of the threat
- Performance Testing
- Differentiation between security and safety contingency plans
- Application of the self-protecting principle

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Nuclear Safeguards and Security

INFCIRC/225/Rev. 5 Implementation Support

Following the IAEA's publication of INFCIRC/225/Revision 5 in January 2011, INS initiated a three-pronged effort to assist states in implementing the revised recommendations

- **Outreach**
  - Conducting outreach on a bilateral and regional basis
- **Workshops and Training**
  - Partnering with the IAEA and other countries on a bilateral/multilateral basis to support implementation by providing training courses, workshops, and training manuals
- **Guides and Tools**
  - Working with the IAEA and other Member States on implementing guides for the new revision, including guides to address transport and theft/sabotage
  - Planning to develop self-assessment tools

INFCIRC/225/Rev. 5 Implementation Support

- **Training and Workshops**
  - "What's New Workshop" on the new recommended requirements in INFCIRC/225/Rev. 5
  - Focused training courses on relevant topics, such as:
    - Vital area identification
    - Vulnerability analysis
    - Risk assessment methodologies
    - Response force training simulation and modeling
- **Guides and Tools**
  - Engagement also includes development of technical tools and guides, such as:
    - IAEA implementing guides on transport and theft/sabotage
    - Electronic reference tools

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Nuclear Safeguards and Security

Workshops on INFCIRC/225/Rev 5

The Office of Nonproliferation and International Security can Offer a variety of workshops through Bilateral cooperation

INFCIRC/225/Rev.5 Workshops

- 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

Backup Slides

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 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

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Nuclear Safeguards and Security

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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Nuclear Safeguards and Security

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