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OFFICE OF RADIOLOGICAL SECURITY

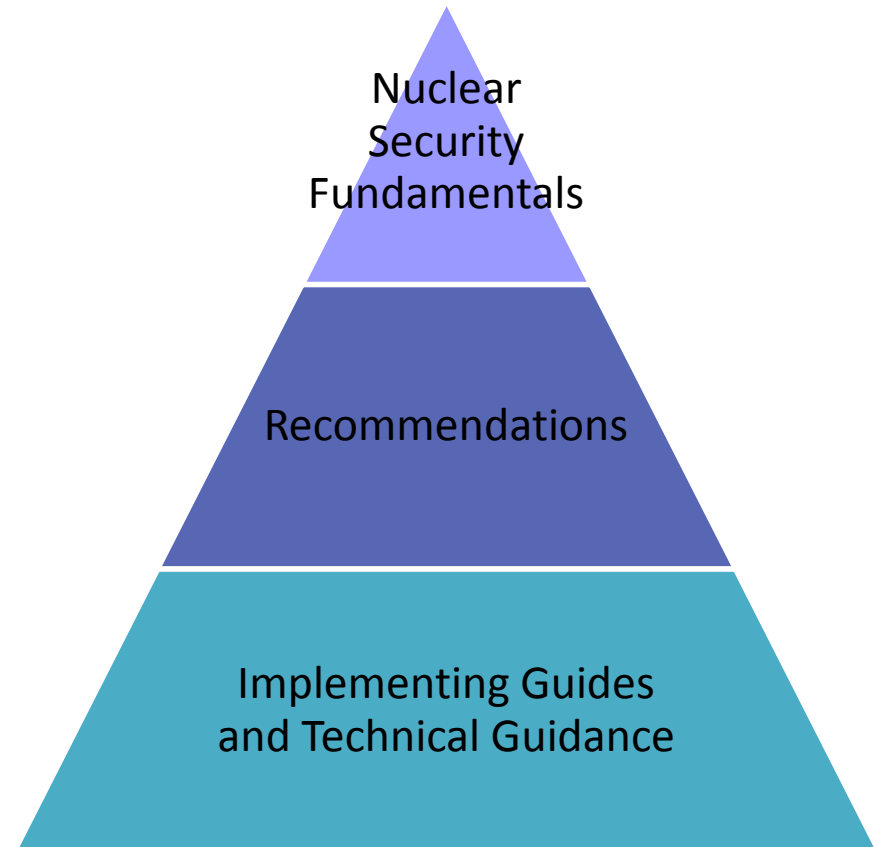
IAEA Nuclear Security Series Guidance for Establishing Regulatory Requirements

The Importance of Regulations for Sustainable Radiological Security

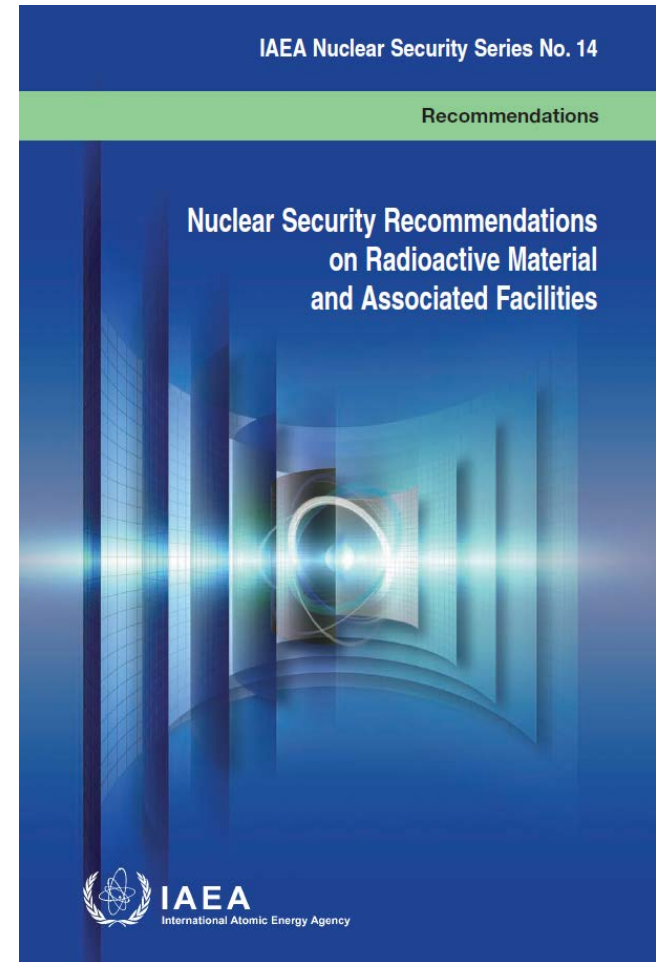
- ▶ The IAEA Code of Conduct indicates that States should establish an effective national legislative and regulatory system of control over the management and protection of radioactive sources, including regulatory requirements for the security of radioactive sources
- ▶ Enforceable security regulations contribute to sustainable security by providing
 - Authoritative expression of what constitutes adequate security
 - Incentives for users to secure their radioactive sources, now and in future
 - Consistency and integration among users, including continuity of regulatory control
 - Assurance to the domestic public and the international community that radioactive sources within the State are secure
- ▶ Regulations also promote security culture and help meet the State's political commitment to implement the Code of Conduct

IAEA Guidance: Introduction

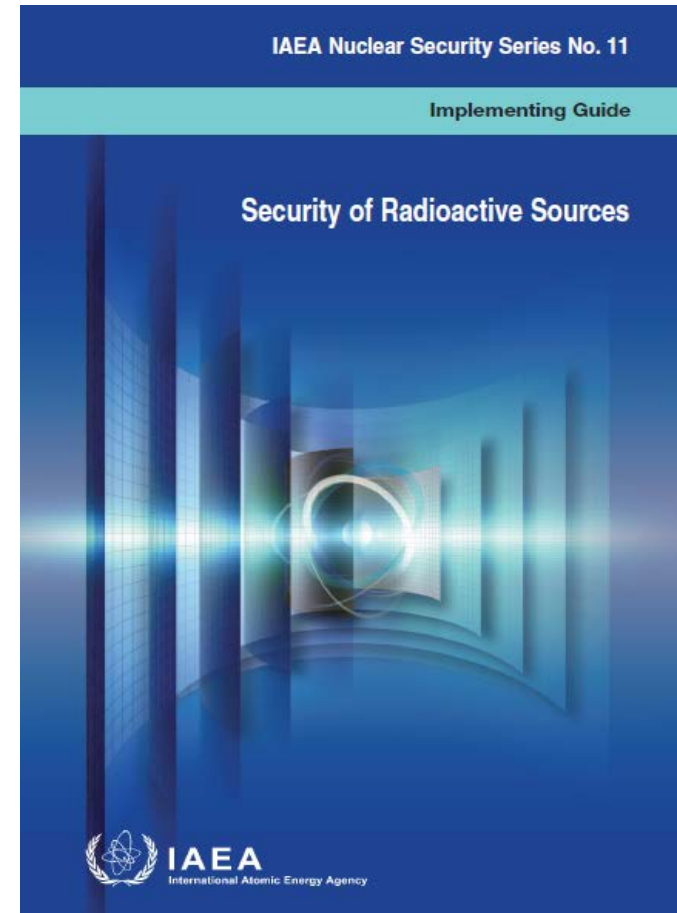
- ▶ The IAEA Nuclear Security Series (NSS) provides guidance to states, their regulatory bodies, and other competent authorities on the establishment and implementation of nuclear security regimes
- ▶ The NSS comprises a hierarchy of publications
- ▶ This presentation highlights three NSS publications relevant to developing regulations for the security of radioactive sources
 - NSS No. 14
 - NSS No. 11
 - NSS No. 30-G



- ▶ Provides guidance to states and competent authorities on how to develop, implement, and maintain a nuclear security regime for radioactive material, associated facilities, and associated activities (i.e., **what** such a regime should include)
- ▶ Published in 2011



- ▶ Published in 2009 (before NSS No. 14)
- ▶ Provides guidance on **how** to implement NSS No. 14 and the Code of Conduct with respect to establishing regulatory requirements for the security of radioactive sources in use and storage
- ▶ Transport security addressed separately in NSS No. 9
- ▶ Forms the primary basis of this presentation
- ▶ Revised versions of both NSS 11 and NSS 9 will be published soon



Developing a Regulatory Framework

Three basic steps:

1. Establish security levels with corresponding goals and objectives
2. Specify the security level for a given source
3. Select and implement a regulatory approach

Step 1: Establish Security Levels

These graded security levels and associated goals are recommended:

- ▶ Security Level A
 - **Prevent** unauthorized removal of a source
- ▶ Security Level B
 - **Minimize** the likelihood of unauthorized removal of a source
- ▶ Security Level C
 - **Reduce** the likelihood of unauthorized removal of a source

Revised NSS 11 rephrases these goals but retains this structure and approach.

Step 1: Establish Security Levels (cont.)

- ▶ To achieve the goal of each security level...

Security Levels A, B and C

- ▶ adequate performance is defined by a set of objectives...

Stated by actions (provide, ensure, identify, establish, etc.)

- ▶ within each security function.

Detect, Delay, Respond, Security Management

- ▶ NSS No. 11 presents the complete set of recommended objectives for each security level is presented in tabular form

Step 2: Specify Applicable Security Level

- ▶ The security level for a source corresponds to the potential harm it could cause if used in a malicious act
- ▶ As a starting point for assigning radioactive sources to security levels, the regulatory body may adopt the “default arrangement” shown in NSS No. 11
 - Category 1 = Security Level A
 - Category 2 = Security Level B
 - Category 3 = Security Level C
 - Categories 4, 5 – no specific security measures other than those required for safety purposes

Step 2: Specify Applicable Security Level (cont.)

- ▶ The regulatory body may also consider the following factors when assigning security levels:
 - Attractiveness (e.g., chemical and physical form, nature of radioactive emissions, ease of handling, collocation, perceived economic value)
 - Sources in temporary storage
 - Vulnerability and threat level
 - Mobile, portable, and remote sources
- ▶ These factors could lead to adjustment of the category-based default assignment of radioactive sources to security levels

Revised NSS 11 provides additional adjustment factors.

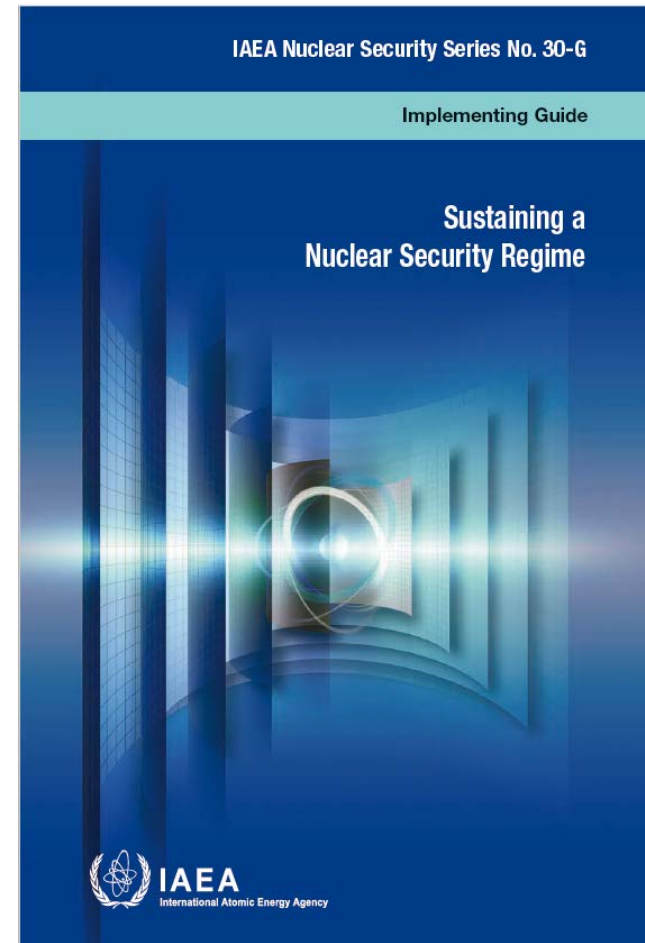
Step 3: Select / Implement an Approach

- ▶ There are three approaches for how operators are to demonstrate they meet the set security objectives
 - Prescriptive approach: requires specific security measures determined by the regulatory body to meet the security objectives
 - Performance-based approach: requires the operator to propose a combination of measures and demonstrate that the security objectives are met
 - Combined approach: includes elements drawn from the prescriptive and performance-based approaches
- ▶ The prescriptive approach is the most common approach – through tables and text, NSS No. 11 identifies specific security measures that could be included in a prescriptive regulation

NSS No. 30-G, Sustaining a Nuclear Security Regime

- ▶ Provides more specific and detailed guidance on sustaining a nuclear security regime
 - Defines sustainability as the set of objectives and implementing actions incorporated into the nuclear security regime to support its continuing effectiveness
 - Distinguishes between national level and operational level sustainability
 - Includes “establishing and reviewing the legislative and regulatory framework” as a primary national-level sustainability objective

- ▶ Published in 2018



Role of Regulations, According to NSS No. 30-G

- ▶ Includes “establishing and regulatory reviewing the legislative and regulatory framework” as a primary national-level sustainability objective
- ▶ Identifies several contributions of meeting this objective to sustainability
 - ▶ Ensures that the formal status of the nuclear security regime is recognized within the State
 - ▶ Ensures that all competent authorities have sufficient legal authority to fulfill their assigned nuclear security responsibilities
 - ▶ Enables regulatory bodies to establish regulatory requirements and to undertake activities related to authorization, assessment of compliance and imposition of appropriate penalties or sanctions through enforcement tools to foster compliance, in order to sustain the operational nuclear security systems

IAEA NSS Guidance, EU Directive 2013/59: General Observations

- ▶ Both IAEA guidance for the security of nuclear material and facilities and EU Directive 2013/59 are complementary to IAEA radioactive source security guidance
- ▶ However, neither is equivalent to the guidance applicable for the security of radioactive sources
 - Facility operations, user communities differ substantially between nuclear and radioactive source facilities, as does guidance
 - Radioactive source facilities are often not in-scope for nuclear regulations; applying nuclear regulations to such facilities may be otherwise impractical or inadvisable
 - Directive 2013/59 does not include requirements for specific security measures
- ▶ Countries should seriously consider adopting specific regulations for the security of radioactive sources, if lacking

Key Points

- ▶ Adopting regulations is an important step toward an effective and sustainable national system of control of radioactive sources
- ▶ *Security of Radioactive Sources Implementing Guide* (NSS No. 11) provides a three-step process for developing a regulatory framework
 1. Establish graded security levels with corresponding goals and objectives for each security level
 2. Specify the security level applicable to given sources
 3. Select and implement a regulatory approach: prescriptive, performance-based, or combined
- ▶ The prescriptive approach is the most straightforward and can be applied to a given source using the tables in the guide
- ▶ Radiological security merits specific treatment in a regulatory framework
 - Distinct from analogous nuclear guidance and Directive 2013/59