

International Atomic Energy Agency

The *Code of Conduct* and “Nuclear” Security

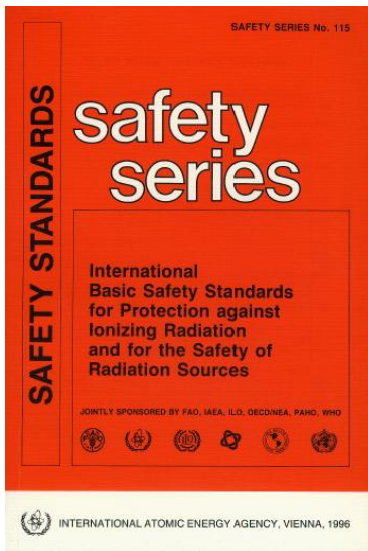
**“Technical Meeting on the Implementation of the *Code of Conduct* with Regard to
Long Term Strategies for the Management of Disused Sealed Radioactive
Sources”**

February 27, 2012

Brian Waud

**Office of Nuclear Security
Department of Nuclear Safety and Security**

From “Radiation Protection” to “Nuclear Security”

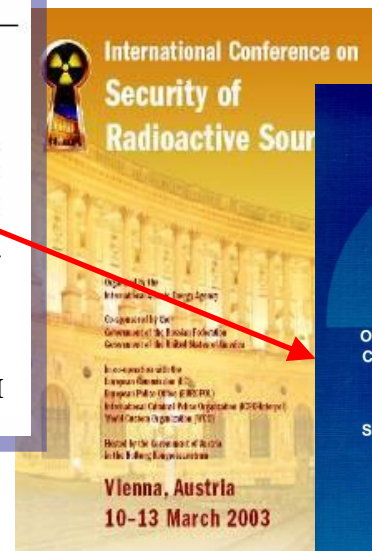


Under the BSS,
security was included
under the concept of
“Radiation
Protection”



NUCLEAR SECURITY – PROGRESS ON MEASURES TO PROTECT AGAINST NUCLEAR TERRORISM

Under the *Code of Conduct*, safety and security are stressed equally.



Code of Conduct - Purpose and Scope

- Designed primarily for national governments.
- Provides guidance on legislation and regulation principles for the security of radioactive sources.
- Applies to “...all radioactive sources that may pose a significant risk to individuals, society, and the environment...”
 - These sources are listed in Annex I of the Code
 - They are Category 1, 2, and 3 “dangerous” sources, as determined by other IAEA guidance



Applicable Principles from the Code

Introduction

Recognizing the need to protect individuals, society and the environment from the harmful effects of possible accidents and malicious acts involving radioactive sources,....

Noting that ineffective, interrupted or sporadic regulatory or management control of radioactive sources has led to serious accidents, or malicious acts, or to the existence of orphan sources,....

8 other uses of the word “malicious” in the *Code*.



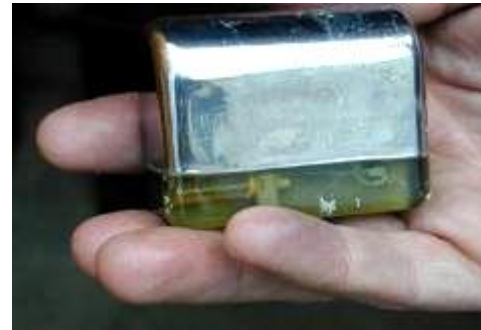
What is a Malicious Act Involving a Radioactive Source?

- Theft of a source or Sabotage of a facility...
- With the intention of deliberately exposing people or the environment to radiation via:
 - Dispersal of radioactive material in a Radiological Dispersion Device (RDD), or
 - External radiation exposure in a Radiological Exposure Device (RED).



Malicious Use – Attractiveness of Sources to Potential Adversaries

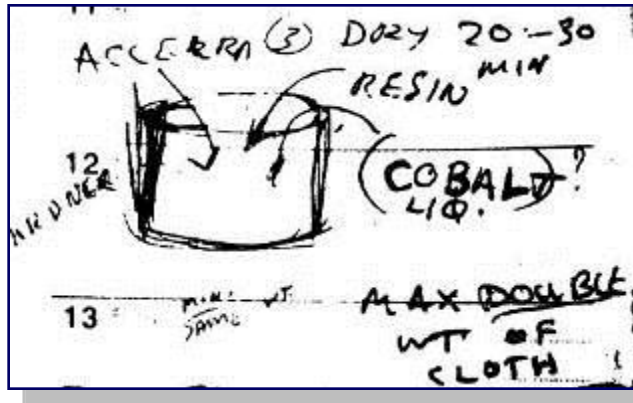
- Readily available material
- Relatively unsophisticated technology
- Minimal security in many instances
- Uncontrolled radiation may cause fear and panic
- May result in area denial, disruption and economic impact



Malicious Use – When, Not If?

November 1995: Moscow, Russia. Chechen rebels bury a container of Cs-137 in a city park.

March 1998: Greensboro, USA. 19 small tubes of Cs-137 are stolen from a hospital.



January 2003: Herat, Afghanistan. British intelligence find Al-Qaeda plans and drawings for a RDD design.

2006: British national convicted of conspiring to commit public nuisance through use of RDDs.



Applicable Principles from the Code

Paragraph 7(a)

Every State should, in order to protect individuals, society and the environment, take the appropriate measures necessary to:

“ensure that the radioactive sources within its territory, or under its jurisdiction or control, are safely managed and securely protected during their useful lives and at the end of their useful lives.”



Nuclear Security Series

Structure of the Series

Fundamentals

Recommendations

Implementing Guides

Technical Guidance

16 Documents published



www-pub.iaea.org

International Atomic Energy Agency



The Nuclear Security Series, so far....

NSS #1 - Border Monitoring Equipment

NSS #2 - Nuclear Forensics

NSS #3 - Radioactive Material in International Mail

NSS #4 - Engineering Protection of NPP's Against Sabotage

NSS #5 - Identification of Radioactive Sources and Devices

NSS #6 - Combating Illicit Trafficking

NSS #7 - Nuclear Security Culture

NSS #8 - Insider Threats

NSS #9 - Security in the Transport of Radioactive Material

NSS #10 - Design Basis Threat

NSS #11 - Security of Radioactive Sources

NSS #12 - Educational Programme in Nuclear Security

NSS #13 - Recommendations on Nuclear Material and Facility Security

NSS #14 - Recommendations on Radioactive Source and Facility Security

NSS #15 - Recommendations for Materials Out of Regulatory Control

NSS #16 -

NSS #17 - Computer Security for Nuclear Facilities



Translating the Nuclear Security Series

	English	French	Spanish	Chinese	Russian	Arabic
	Pending					
NSS #1 - Border Monitoring Equipment	Official			China	RF?	
NSS #2 - Nuclear Forensics	Official			China	RF?	
NSS #3 - Radioactive Material in International Mail	Official			China	RF?	
NSS #4 - Engineering Protection of NPP's Against Sabotage	Official			China	RF?	
NSS #5 - Identification of Radioactive Sources and Devices	Official	Official	Official	Official	RF?	
NSS #6 - Combating Illicit Trafficking	Official	Under Negotiation?		China	RF?	
NSS #7 - Nuclear Security Culture	Official	Official	EU V	China	RF?	EU IV
NSS #8 - Insider Threats	Official		EU V	China	Official	
NSS #9 - Security in Transport of Radioactive Material	Official		EU V	China	RF?	
NSS #10 - Design Basis Threat	Official		EU V	China	RF?	EU IV
NSS #11 - Security of Radioactive Sources	Official		EU V	Official	RF?	Official
NSS #12 - Educational Programme in Nuclear Security	Official			China	RF?	
NSS #13 - Recommendations on Nuclear Material and Facility Security	Official	Official	(UK)	(UK)	Official	Official
NSS #14 - Recommendations on Radioactive Source and Facility Security	Official	Official	(UK)	Official	Official	Official
NSS #15 - Recommendations for Materials Out of Regulatory Control	Official	Official	(UK)	Official	Official	(UK)
NSS #16 -						
NSS #17 - Computer Security for Nuclear Facilities	Official					

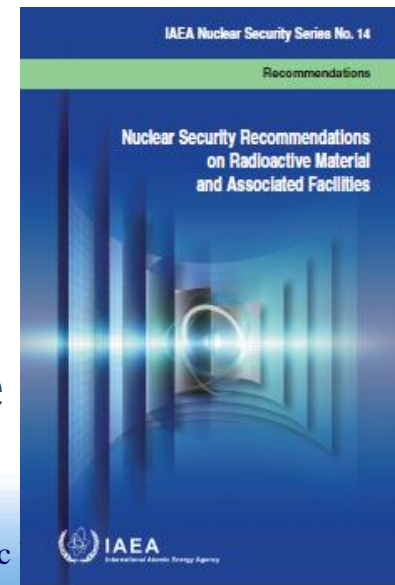


Nuclear Security Series #14

Nuclear Security Recommendations on Radioactive Material and Associated Facilities

Elements of a States (Nuclear) Security Regime

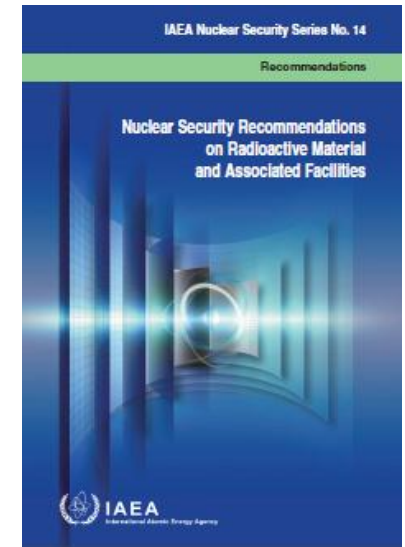
- **State Responsibility**
- **Assignment of (nuclear) security responsibilities**
- **Legislative and Regulatory Framework**
 - State
 - Regulatory Body
 - Operator, shipper and/or carrier
- **International Cooperation and Assistance**
- **Identification and Assessment of Threats**



Nuclear Security Series #14

Nuclear Security Recommendations on Radioactive Material and Associated Facilities

- Risk based nuclear security systems and measures
 - Risk Management
 - Interfaces with safety system
- Sustaining the nuclear security regime
- Planning and preparedness for and response to an event
- Import and Export of radioactive material
- Detection of nuclear security events



Applicable Principles from the Code

Paragraph 19(g)

Such legislation and/or regulations should provide for, in particular:

“requirements for security measures to deter, detect and delay the unauthorized access to, or the theft, loss or unauthorized use or removal of radioactive sources during all stages of management.”

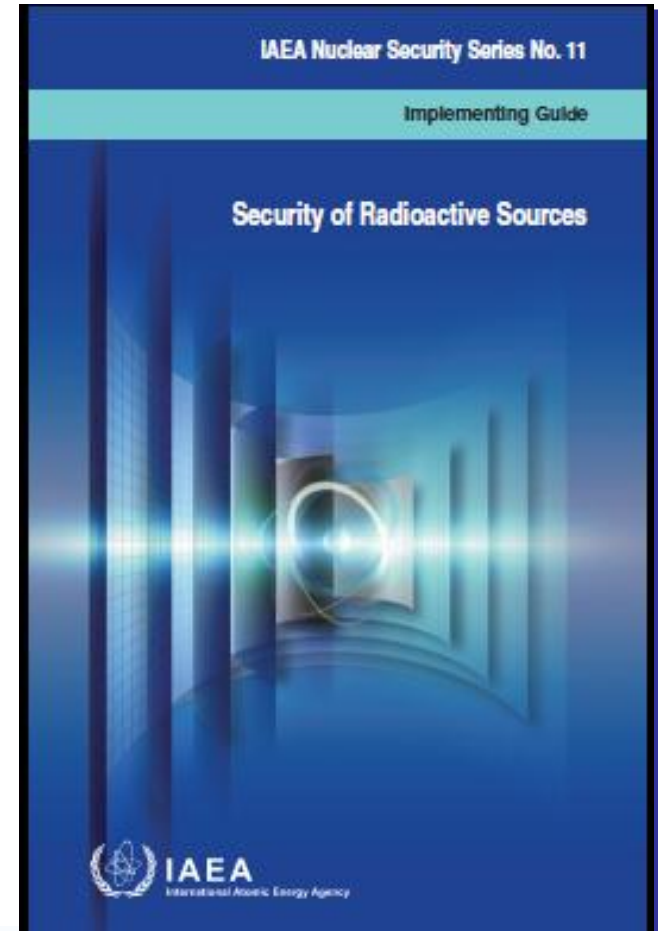


Nuclear Security Series #11

Security of Radioactive Sources

Key Security Functions:

1. Deterrence
2. Detection
3. Delay
4. Response
5. Security Management



Nuclear Security Series #11

Security of Radioactive Sources

Underlying Security Concepts:

1. Deterrence cannot be measured
2. Detection before Delay
3. Detection requires Assessment
4. Delay greater than Assessment plus response time
5. Balanced Protection
6. Defense in Depth



Security Goals by Source Category – A Graded Approach

Category I =  Security Goal for Security Level A:
Security Level A **PREVENT UNAUTHORIZED REMOVAL!**

Category II =  Security Goal for Security Level B:
Security Level B **Minimize** Likelihood of Unauthorized Removal.

Category III =  Security Goal for Security Level C:
Security Level C **Reduce** Likelihood of Unauthorized Removal.



Security Objectives by Category - Examples

Category I =
Security Level A



- IMMEDIATE detection of any attempted unauthorized removal.
 - IMMEDIATE response with sufficient resources to interrupt and prevent.
-

Category II =
Security Level B



- Provide detection of any attempted unauthorized removal.
 - Provide immediate initiation of response to interrupt unauthorized removal.
-

Category III =
Security Level C



- Provide detection of unauthorized removal.
- Implement appropriate action in the event of unauthorized removal.



Applicable Principles from the Code

Paragraph 20 (e.vii)

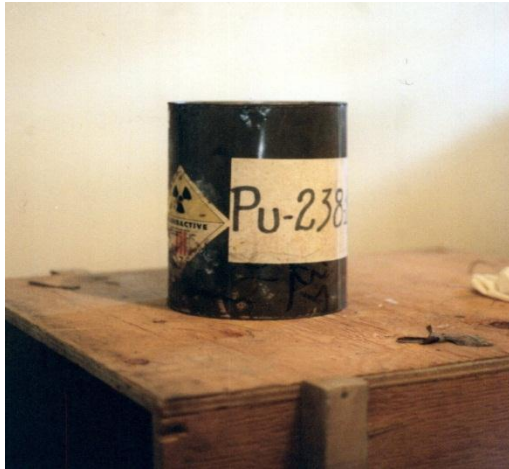
Every State should ensure that the regulatory body established by its legislation has the authority to:

attach clear and unambiguous conditions to the authorizations issued by it, including conditions related to:

“The safe and secure management of disused sources, including, where applicable, agreements regarding the return of disused sources to a supplier....”



Challenges to Implementation



**A More Systematic Approach is Needed:
Policies for Defining Long-Term
Performance Indicators and
Action Plans for Producing Short-Term,
Practical Results**



Reassessing the Radioactive Material Security Program

December 2011 Consultancy Meeting:

- NSNS is adjusting its internal structure and promoting a greater emphasis on security for radioactive materials.
- Acknowledged that, **in many States**, implementation of national radioactive material security programmes are still in the developmental stage.
- Defined the key components of the Programme and analysed its future development based on NSS #14.
- Linked each component to applicable international norms.
- Defined conceptual metrics for achievement in each component.



Summary of Security for Disused Sealed Radioactive Sources

- The *Code of Conduct* was the first international instrument to stress the security of radioactive sources.
- It provides general security guidance to governments and regulators, but also to users.
- The Nuclear Security Series is intended to help support States to understand how to meet the principles found in the *Code*.
- Further work is needed to develop a comprehensive program to assist States to meet those principles.



...Thank you for your attention

