



# THE UK APPROACH TO SECURITY OF RADIOACTIVE SOURCES

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## 1. Introduction

- Soon after-September 11 2001, Environment Agency instigated a programme of **increased security** on premises holding the largest 150 radioactive sources in England & Wales
- These went **beyond “Basic Safety Standards”** requirements for security intended to keep people safe from sources in normal use
- Advice on physical protection measures was sought from **UK Police** forces newly created **Counter-Terrorist Security Advisers (CTSAs)** and from the nuclear site security regulator (Office of Civil Nuclear Security)
- UK government later required these to be made into a **mandatory regime**
- Unusually, measures were added to the UK implementation of the European Council Directive 2003/122/Euratom (“the Directive”) on the control of high-activity sealed radioactive sources and orphan sources (“HASS”)
- A mandatory regime **started 01 January 2006** based on the then IAEA Best Practice Guidance document (TECDOC 1355)
- UK environment agencies were given a **new duty as the regulator** of security of radioactive sources

## 2. The international context

UK draws heavily on the IAEA

- Based on TECDOC 1355 (2003) : **Deter, Detect, Delay, Respond**
- Mainly **prescriptive approach**: simpler than performance-based approach used on nuclear sites
- A **graded approach** based on IAEA TECDOC 1344 “Categorisation of Radioactive Sources (2003)”
- Applies to IAEA **source Categories 1 to 4**
- Additionally, some measures apply to **Category 5** radioactive sources

## 3. Typical sources to be protected

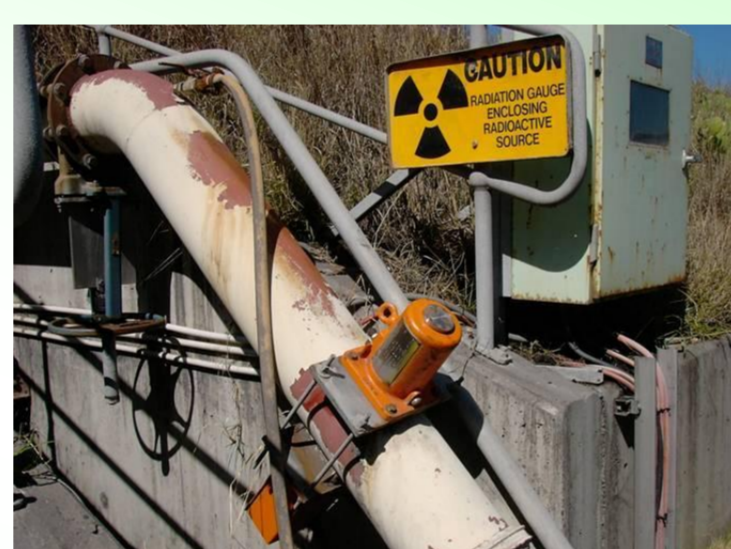
Radiotherapy



Industrial Radiography



Industrial Gauges



## 4. A legal requirement

- Now **implemented** in the UK under the Environmental Permitting Regulations 2010
- The **enforcing body in England and Wales is the Environment Agency**
- New applicants for permits **must have all security measures in place** before a permit is granted, including:
  - A site **security plan**
  - An **information security** plan
  - Ability and options for **upgrades of security to meet increased threat**
  - Personnel **background checks** (good management practice)
  - **Compliance with other** relevant legislation for security and keeping and use of radioactive substances

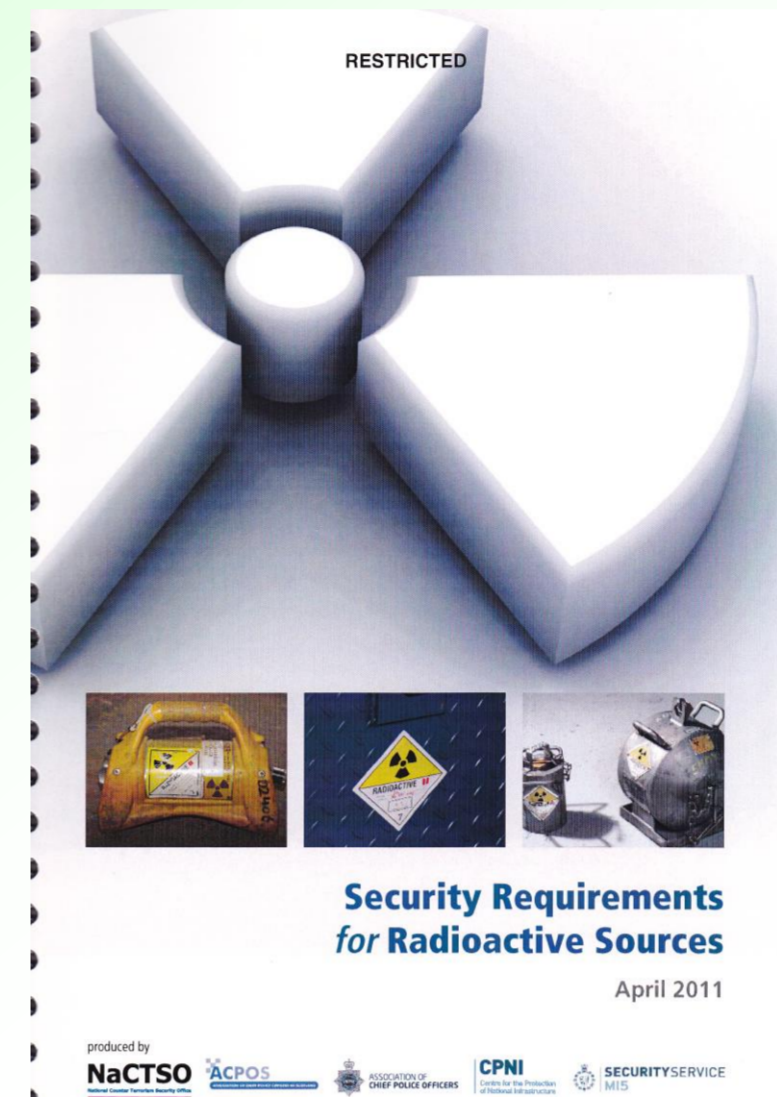
Premises holding Category 1 sources must also have:

- Source protected by 2 physical measures
- Timely detection of unauthorised access
- Timely police response to a verified alarm
- Premises holding Category 2 sources premises holding Category 3 and 4 sources have graded requirements
- Even Category 5 sealed sources are under security regulation, but CTSAs are not involved at this level

## 5. Why is the regime so rigorous?

We believe :

- the **threat remains** credible
- whilst radioactive sources are hazardous, their main impacts are:
  - **disruption**, and
  - denial of access to key areas or damage to iconic locations
  - so source strength is not the only issue
- the consequences could be disproportionate to the hazards



- Physical protection **standards** have been set by the Police experts
- The requirements are published and made available only to those with a **need to know**
- All regulatory power and responsibility is with the Regulators not Police
- Police give advice on security of unsealed sources

## 6. Trouble shooting during implementation

Sometimes, with best intentions, security measures got out of proportion. E.g safety (such as Fire Requirements must be prioritised over security). Usually, a **sensible compromise** is achievable. Everyone has **learned and cooperated**.

Some over-enthusiasm:

- Medical consultant who locked in patients to prevent kidnap of sources
- Hospital staff worried they are expected to confront terrorists (Police role)
- Over enthusiastic – measures reduced productivity of a radiotherapy department – this needed to be rebalanced

**Important to find the balance between safety, security and operability**

UK regime: **Necessary, Proportionate, Effective and Acceptable** to users

## 7. Key Lessons learned

- 7.1. **Security culture** is key – for regulators and the regulated
- 7.2. Radiation Protection (RP) professionals proved to be a **very receptive** and educated audience:
  - they understood the radiological issues
  - they are a **small community** of professionals; know each other
  - so, **information can be shared** with them while maintaining security.
- 7.3 However, RP professionals needed educating about **threat**. They did not immediately understand that radiological hazards were **not the only risk** but also:
  - Social impacts (**disruption**)
  - **Psychological** effects
  - Potential political consequences
- 7.4. Regulators, policemen and the regulated can go too far
  - It is vital to **find the balance** between security and operability
- 7.5 The aim should be that the security regime enables practitioners to **continue beneficial applications** of radioactive sources **despite the security climate**, **not** prevents them due to the security climate.