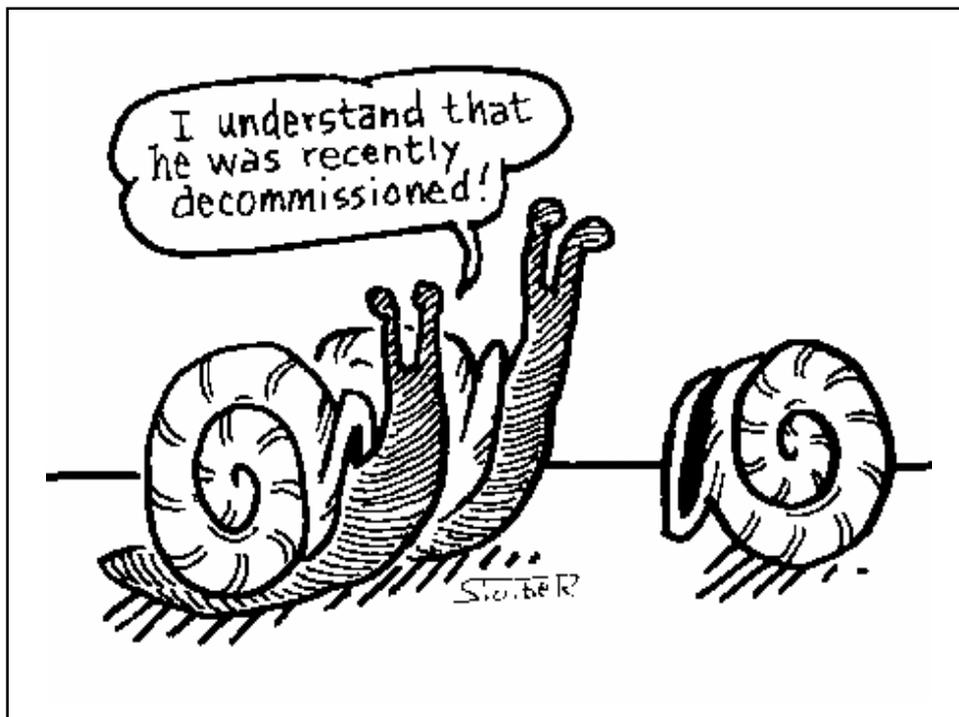


# INTERNATIONAL INSTRUMENTS RELEVANT TO DECOMMISSIONING OF RESEARCH REACTORS

IAEA Regional Workshop on Legal and  
Regulatory Aspects of Decommissioning  
of Research Reactors

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## **International Law and Decommissioning Fundamental Concepts**

- **Like most health, safety and environmental issues, decommissioning is primarily a national responsibility**
- **International law obligations concerning decommissioning are a recent development (since early 1990's)**
- **IAEA standards documents reflect “best practice” and useful guidance; not strict legal obligations**

## **Primary international legal instruments relating to the decommissioning of nuclear facilities**

- **Convention on Nuclear Safety 1994)**
- **Joint Convention on Safety of Spent Fuel and Radioactive Waste Management (1997)**
- **Code of Conduct on the Safety of Research Reactors (2004)**
- **IAEA INFCIRC/153 (1972) The Structure and Content of Safeguards Agreements in Connection with the NPT**
- **IAEA INFCIRC/540 (1997) Model Additional Protocol for the Application of Safeguards**

## **ADVANTAGES OF ADHERING TO INTERNATIONAL INSTRUMENTS**

- **HELPS ENSURE APPLICATION OF MEASURES REFLECTING INTERNATIONAL CONSENSUS OF TECHNICAL AND LEGAL EXPERTS**
- **FACILITATES TECHNICAL COOPERATION AND COMMERCIAL DEVELOPMENT**
- **REVIEW PROCESS UNDER SOME INSTRUMENTS CAN AID SELF-ASSESSMENT TO IDENTIFY ISSUES, PROBLEMS & BEST PRACTICE**
- **CONTRIBUTES TO HARMONIZING STANDARDS AND PROCEDURES AMONG NATIONS UTILIZING NUCLEAR ENERGY**

### **Convention on Nuclear Safety (1)**

- **Scope of coverage limited to civil nuclear power reactors**
- **Definition of “nuclear installation” in Article 2(i) provides that a plant loses its character as an installation when all nuclear fuel elements have been:**
  - **removed permanently from the reactor core**
  - **stored safely**
  - **and a decommissioning programme has been agreed to by the regulatory body**

## **Convention on Nuclear Safety (2)**

**Until a decommissioning programme has been approved, a nuclear installation must meet all CNS safety requirements**

- Priority to Safety (Article 10)**
- Financial and Human Resources (Article 11)**
- Human factors (Article 12)**
- Quality Assurance (Article 13)**
- Assessment and verification of safety (Article 14)**
- Radiation protection (Article 15)**
- Emergency preparedness (Article 16)**
- Siting (article 17)**
- Design and construction (Article 18)**
- Operation (Article 19)**

## **Convention on Nuclear Safety (3)**

**Article 19(viii) requires that “the generation of radioactive waste resulting from the operation of a nuclear installation is kept to the minimum practicable . . . and any necessary treatment and storage of spent fuel and waste directly related to the operation and on the same site . . . Take into consideration conditioning and disposal.”**

**Waste minimization can have a significant impact on the process and costs of decommissioning.**

### **Joint Waste/Spent Fuel Convention (1)**

- **The Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (1997) contains more extensive obligations pertaining to decommissioning than the Convention on Nuclear Safety**
- **First review meeting of the Joint Convention (November 2003) and second meeting (15-24 May 2006) considered, *inter alia*, compliance with the instrument's decommissioning obligations**

### **Joint Waste/Spent Fuel Convention Definitions (1)**

- **Scope of coverage based on definition in Article 2.b:  
“*Decommissioning* means all steps leading to the release of a nuclear facility, other than a disposal facility from regulatory control. These steps include the processes of decontamination and dismantling”.**

## **Joint Waste/Spent Fuel Convention Definitions (2)**

- **The associated definition in Article 2.f states:  
“*Nuclear facility* means a civilian facility and its associated land, buildings and equipment in which radioactive materials are produced, processed, used, handled, stored or disposed of on such a scale that consideration of safety is required.**
- **A related definition in Article 2.d states:  
“*Disposal* means the emplacement of spent fuel or radioactive waste in an appropriate facility without the intention of retrieval.”**

## **Joint Convention on Waste & Spent Fuel Substantive obligations**

- **Article 16 on Operation of Facilities provides that each contracting party shall take appropriate steps to ensure that:  
“decommissioning plans for a radioactive waste facility other than a disposal facility are prepared and updated, as necessary, using information obtained during the operating lifetime of that facility, and are reviewed by the regulatory body”**

## **Joint Convention on Waste and Spent Fuel Substantive obligations (2)**

- **Article 17 on Institutional Measures After Closure of a disposal facility requires parties to ensure that:**
  - i. Records of the location, design and inventory of that facility required by the regulatory body are preserved;**
  - ii. Active or passive institutional controls such as monitoring or access restrictions are carried out, if required, and**
  - iii. If, during any period of active institutional control, an unplanned release of radioactive materials into the environment is detected, intervention measures are implemented, if necessary.**

## **Joint Convention on Waste and Spent Fuel Substantive obligations (3)**

- **Article 22 on Human and Financial Resources requires parties to take appropriate steps to ensure that:**
  - “ii. Adequate financial resources are available to support the safety of facilities for spent fuel and radioactive waste management during the operating lifetime and for decommissioning;**
  - iii. Financial provision is made which will enable the appropriate institutional controls and monitoring arrangements to be continued for the period deemed necessary following the closure of a disposal facility.”**

## **Joint Convention on Waste and Spent Fuel Substantive Obligations (4)**

The most specific requirements in the Joint Convention are set forth in Article 26 on Decommissioning, as follows:

**“Each contracting party shall take the appropriate steps to ensure the safety of decommissioning of a nuclear facility. Such steps shall ensure that”**

- i. Qualified staff and adequate financial resources are available;**
- ii. The provisions of Article 24 with respect to operational radiation protection, discharges and unplanned and uncontrolled releases are applied;**
- iii. The provisions of Article 25 with respect to emergency preparedness are applied, and**
- iv. Records of information important to decommissioning are kept.**

## **Code of Conduct on the Safety of Research Reactors (CCSRR)**

- Adopted by the IAEA Board of Governors on 8 March 2004**
- Non-binding, but Preamble provides that it “should serve as guidance to States for, inter alia, the development and harmonization of policies, laws and regulations on the safety of research reactors”**

## **CCSRR Provisions on Decommissioning (1)**

### **Preamble—Para 9**

**“Taking account of the provisions of the  
Joint Convention . . . , in particular those  
provisions that apply to spent fuel and  
radioactive waste arising from the  
operation and decommissioning of  
research reactors”**

## **CCSRR Provisions on Decommissioning (2)**

### **PART I. SCOPE**

**Sections 1-3**

### **PART V. ROLE OF THE STATE**

**Section 13 (financing)**

**Section 15 (decommissioning)**

### **PART VI. ROLE OF REGULATORY BODY**

**Section 20(b) (safety analysis report)**

**Section 20(u) (release criteria)**

**CCSRR Provisions on  
Decommissioning (3)**

**PART VII. ROLE OF THE  
OPERATING ORGANIZATION**

**Section 23 (financing)**

**Section 32(k) (documentation)**

**PART VII.D. DECOMMISSIONING**

**Section 34 (keeping in view ultimate  
decommissioning)**

**Section 35 (decommissioning plan)**

**Safeguards and Decommissioning  
Safeguards Obligation**

- **Fundamental safeguards obligation for most states is contained in Article III of the Nuclear Non-Proliferation Treaty (NPT) which obligates Non-Nuclear Weapon States to accept IAEA safeguards on all source or special fissionable material in all of a State's peaceful nuclear activities**

## **Safeguards and Decommissioning NPT Basic Safeguards Document**

- INFCIRC/153 (1972) is the basic safeguards document for comprehensive safeguards under the NPT
- Most relevant provision of 153 for decommissioning is in Part I on Termination of Safeguards:  
“The Agreement should provide that safeguards shall terminate on nuclear material subject to safeguards thereunder upon determination by the Agency that it has been consumed, or has been diluted in such a way that it is no longer usable for any nuclear activity relevant from the point of view of safeguards or has become practically irrecoverable.” (para. 11. See also, parallel provision under Part II, para. 35)

## **Safeguards and Decommissioning Changes in Safeguards Application**

- Under INFCIRC 153, para. 11, safeguards may be terminated where the Agency has made required findings (namely that safeguards relevant material has been consumed or diluted)
- If safeguards-relevant materials from a decommissioned facility have been transferred to another facility, they must be added to the appropriate inventory for continued application of safeguards
- However, under the Model Additional Protocol (discussed *infra*), certain safeguards obligations may continue with regard to a decommissioned facility

### **Safeguards and Decommissioning Model Additional Protocol**

- **INFCIRC/540 (1997) sets forth Model Additional Protocol of enhanced safeguards in three areas**
  - **Broader Information to be provided to IAEA**
  - **Complementary access by Agency inspectors**
  - **Administrative arrangements**
- **Some of these requirements are particularly relevant to decommissioning**

### **Safeguards and Decommissioning Information**

**INFCIRC 540, Article 2 requires State to furnish Agency with extensive information concerning its nuclear fuel cycle-related activities, including facilities and locations outside facilities, operations, materials, imports and exports and exempted materials**

## **Safeguards and Decommissioning Complementary Access**

**INFCIRC/540, Article 5.a(iii) requires the State to provide the Agency with access to:**

**“Any decommissioned facility or decommissioned location outside facilities where nuclear material was customarily used.”**

**INFCIRC 540, Article 5.a(ii) also requires access to “any location identified by the State under Article 2.a.(v)-(viii)**

## **Safeguards and Decommissioning Complementary Access (2)**

- **Article 6 of INFCIRC/540 contains important provisions concerning the manner in which the Agency can practically implement its complementary access rights. For example:**
  - through visual observation, collection of environmental samples, measurement devices, seals, etc. (Art. 6.a)**
  - item counting, NDA measurements and sampling, examination of records, etc. (Art. 6.b)**
  - relevant production and shipping records, etc. (Art. 6.c)**
  - for unresolved questions or inconsistencies, visual observation, radiation detection devices, etc. (Art. 6.d)**

## Safeguards and Decommissioning Export and Imports

If materials or equipment from a decommissioned facility are exported, certain safeguards obligations may arise under INFCIRC/540 Article 2.a(ix):

“The State shall provide the Agency with a declaration containing: (ix) the following information regarding equipment and non-nuclear material listed in Annex II (a) for each export . . . “

Annex II contains a detailed listing of equipment from nuclear utilization and fuel cycle facilities



## Safeguards and Decommissioning Definition

A relevant definition under INFCIRC/540 include:

***Decommissioned facility or decommissioned location outside facilities*** means an installation or location at which residual structures and equipment essential for its use have been removed or rendered inoperable so that it is not used to store and can no longer be used to handle, process or utilize *nuclear material*.”

Article 18.c

See also, definitions for *site* (18.b), *closed-down facility* (18.d), *facility* (18.i) and *location outside facilities* (18.j).

