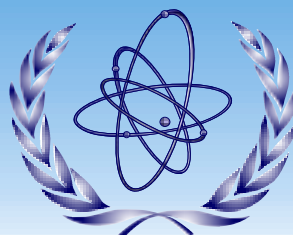


**International Atomic Energy Agency**

# **Regional Workshop on Application of the Code of Conduct on the Safety of Research Reactors**

## **Lecture 2.1**



**International Atomic Energy Agency**

**Conventions and Codes of Conduct  
on  
Nuclear Safety**

**L. W. Deitrich**

**Division of Nuclear Installation Safety**

**2004**

# Conventions

- **Convention on Early Notification of a Nuclear Accident**
- **Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency**
- **Convention on Nuclear Safety**



# Conventions

- **Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management**
- **Convention on Physical Protection of Nuclear Materials**
- **Others...**



# Codes of Conduct

- **Code of Practice on the Transboundary Movement of Radioactive Waste**
- **Code of Conduct on the Safety and Security of Radioactive Sources**
- **Code of Conduct on the Safety of Research Reactors**



# Convention on Nuclear Safety

- **Adopted by a Diplomatic Conference in Vienna: 17 June 1994**
- **Opened for Signature: 20 September 1994**
- **Entry into force: 24 October 1996.**
- **Now: 65 Signatories; 55 Contracting Parties.**



# Convention on Nuclear Safety

- **Legally commits Contracting Parties operating land-based nuclear power plants to maintain a high level of safety by setting international benchmarks.**
- **Obligations of the Contracting Parties are based largely on the principles in Safety Fundamentals SS No. 110, “The Safety of Nuclear Installations.”**
- **The Convention is an incentive instrument; no controls or sanctions.**



# Convention on Nuclear Safety

- **Parties submit national reports on implementation of their obligations for peer review at triennial meetings.**
- **First review meeting: 12-23 April 1999.**
- **Second review meeting: 15-26 April 2002.**
- **Third review meeting: 11-22 April 2005.**
  - **National reports due: 8 September 2004.**
  - **Questions and answers: 11 January 2005.**



# **The Code of Conduct on the Safety of Research Reactors**

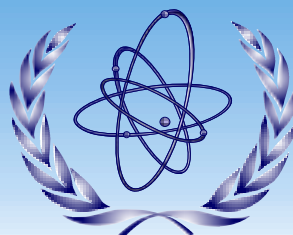
- **Adopted by the IAEA Board of Governors, 8 March 2004.**
- **A non-binding international legal instrument that stands alone and apart from other documents, to which a State may make a non-binding political commitment.**



# **The Code of Conduct on the Safety of Research Reactors**

- **Provides guidance to States for the development and harmonization of policies, laws and regulations on the safety of research reactors, and offers “best practice” guidance for management of research reactor safety.**
- **Includes technical provisions based upon consensus documents, primarily IAEA Safety Fundamentals and Requirements.**





**International Atomic Energy Agency**

**Safety Standards and Publications Useful in  
Applying the Code of Conduct on the Safety of  
Research Reactors**

**L.W. Deitrich**

**Division of Nuclear Installation Safety**

**2004**

# Structure of the Code of Conduct

- **Scope**
- **Objective**
- **Application of the Guidance**
- **Role of the State**
- **Role of the Regulatory Body**
- **Role of the Operating Organization**
- **Role of the IAEA**



# Application of the Guidance in the Code

**States should:**

- **Apply the Code through national safety regulations;**
- **Make appropriate use of IAEA Safety Standards;**
- **Apply a graded approach commensurate with the hazard potential;**
- **Communicate any difficulties faced and assistance required in application of the Code to the IAEA.**



# Application of the Guidance in the Code

- **“Application of this Code is accomplished through national safety regulations pertaining to all stages in the life of research reactors. In doing so, States are encouraged to make appropriate use of IAEA safety standards relevant to research reactors and relating to the legal and governmental infrastructure for nuclear, radiation, radioactive waste and transport safety.”**



# IAEA Safety Standards and Publications

- **Safety Standards Series**
- **Safety Series – Superseded by SSS**
- **Safety Report Series**
- **INSAG Reports**
- **Technical Report Series**
- **IAEA Technical Documents (TECDOCs)**
- **IAEA Services Series**
- **Accident Response**



# Categories of Safety Standards

- **Safety Fundamentals (F)**
  - Basic objectives, concepts, and principles of safety and protection.
- **Safety Requirements (R)**
  - Requirements that must be fulfilled to ensure safety for particular activities or applications.
- **Safety Guides (G)**
  - Recommended actions, conditions, or procedures for complying with safety requirements.



# The Safety Standard Series

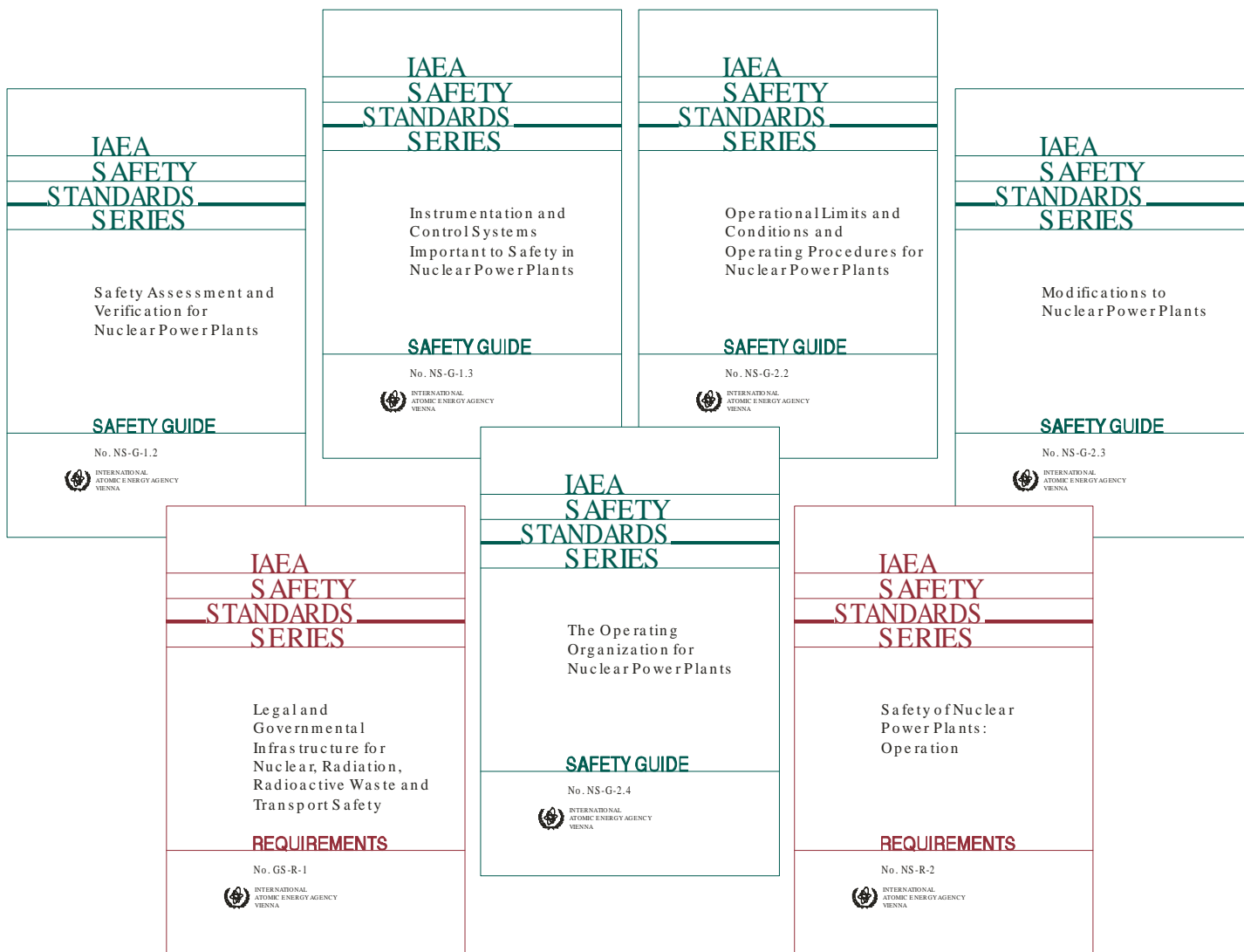
- **General Safety (GS)**
  - Safety Fundamentals
  - Legal and Governmental Infrastructure
  - Emergency Preparedness and Response
  - Quality Assurance
- **Nuclear Safety (NS)**
  - Design of NPPs
  - Operation of NPPs
  - Site Evaluation
  - Research Reactors
  - Fuel Cycle Facilities



# The Safety Standard Series

- **Radiation Safety (RS)**
- **Radioactive Waste Safety (WS)**
  - Infrastructure
  - Pre-disposal
  - Disposal
  - Rehabilitation
- **Transport Safety (TS)**





# Basic Documents

- **SS No. 110: The Safety of Nuclear Installations (1993).**
- **NS-R-4 (DS272): Safety of Research Reactors (2004).**
- **INSAG-10: Defence in Depth in Nuclear Safety (1996).**
- **INSAG-12: Basic Safety Principles for Nuclear Power Plants (75-INSAG-3, Rev 1) (1999).**



## Basic Documents (contd.)

- **50-C/SG-Q: Quality Assurance for Safety in Nuclear Power Plants and other Nuclear Installations: Code and Safety Guides Q1-Q14 (1996).**
  - **DS338: Management Systems for the Safety of Facilities and Activities Involving the Use of Ionizing Radiation (in draft).**
  - **DS339: Thematic Guidance for the Safety of Facilities and Activities Involving the Use of Ionizing Radiation (in draft).**



# The Role of the State

- **GS-R-1: Legal and Governmental Infrastructure for Nuclear, Radiation, Radioactive Waste, and Transport Safety (2000).**
- **GS-R-2: Preparedness and Response for a Nuclear or Radiological Emergency (2002).**
  - **DS105: Arrangements for Preparedness for Nuclear or Radiological Emergencies (in draft).**



## The Role of the Regulatory Body

- **GS-G-1.1: Organization and Staffing of the Regulatory Body for Nuclear Facilities (2002).**
- **GS-G-1.2: Review and Assessment of Nuclear Facilities by the Regulatory Body (2002).**
- **GS-G-1.3: Regulatory Inspection of Nuclear Facilities and Enforcement by the Regulatory Body (2002).**
- **GS-G-1.4: Documentation for Use in Regulating Nuclear Facilities (2002).**



## **Role of the Regulatory Body (contd.)**

- **INSAG-17: Independence in Regulatory Decision Making (2003).**
- **Safety Report Series 24: Communication Planning by the Regulatory Body (2002).**
- **TECDOC-1254: Training the Staff of the Regulatory Body for Nuclear Facilities: A Competency Framework (2001).**



# **The Role of the Operating Organization: Safety Culture**

- **INSAG-4: Safety Culture (A Report by the International Nuclear Safety Advisory Group) (1991).**
- **Safety Report 11: Developing Safety Culture in Nuclear Activities – Practical Suggestions to Assist Progress (1998).**
- **INSAG-15: Key Practical Issues in Strengthening Safety Culture (2002).**



# **The Role of the Operating Organization: Safety Assessment and Verification**

- **SS 35-G1: Safety Assessment of Research Reactors and Preparation of the Safety Analysis Report (1994).**
- **SS 35-G2: Safety in the Utilization and Modification of Research Reactors (1994).**
- **TECDOC-792: Management of Research Reactor Aging (1995).**
- **TECDOC-1263: Application of Non-destructive Testing and In-service Inspection to Research Reactors (2001).**



# The Role of the Operating Organization: Operations

- **Draft documents published as Working Material in 2000, now being revised:**
  - **DS259: Commissioning of Research Reactors.**
  - **DS260: Maintenance, Periodic Testing and Inspection of Research Reactors.**
  - **DS261: [Operating Procedures and] Operational Limits and Conditions for Research Reactors.**



# **The Role of the Operating Organization: Operations (contd.)**

- **Other Safety Guides in preparation:**
  - **DS325: The Operating Organization and the Recruitment, Training and Qualification of Personnel for Research Reactors.**
  - **DS350: Core Management and Fuel Handling for Research Reactors.**
  - **DS340: Radiation Protection and Waste Management in the Design and Operation of Research Reactors.**
  - **DS351: Use of a Graded Approach in Application of the Safety Requirements for Research Reactors.**



# **The Operating Organization: Extended Shutdown/Decommissioning**

- **WS-R-2: Predisposal Management of Radioactive Waste, incl. Decommissioning (2000).**
- **WS-G-2.1: Decommissioning of Nuclear Power Plants and Research Reactors (1999).**
- **Safety Report 36: Safety Considerations in the Transition from Operation to Decommissioning in Nuclear Facilities (2004).**
- **TECDOC-1387: Safety Considerations for Research Reactors in Extended Shutdown (2004).**



## Some Useful IAEA Web Addresses

- **Convention on Nuclear Safety:**
  - [www-ns.iaea.org/conventions/nuclear-safety.htm](http://www-ns.iaea.org/conventions/nuclear-safety.htm)
- **The Code of Conduct on the Safety of Research Reactors:**
  - [www-ns.iaea.org/downloads/ni/code-rr/code\\_conduct\\_March04.pdf](http://www-ns.iaea.org/downloads/ni/code-rr/code_conduct_March04.pdf)
- **Safety Standards:**
  - [www-ns.iaea.org/standards/default.htm](http://www-ns.iaea.org/standards/default.htm)



# Some Useful IAEA Web Addresses

- **Publications:**
  - [www-pub.iaea.org/publications.htm](http://www-pub.iaea.org/publications.htm)
- **Nuclear Installation Safety publications:**
  - [www-ns.iaea.org/publications/](http://www-ns.iaea.org/publications/)
- **Research Reactor Safety home page:**
  - [www-ns.iaea.org/tech-areas/research-reactor-safety/](http://www-ns.iaea.org/tech-areas/research-reactor-safety/)

