Spent fuel – waste or resource? A perspective from the IAEA

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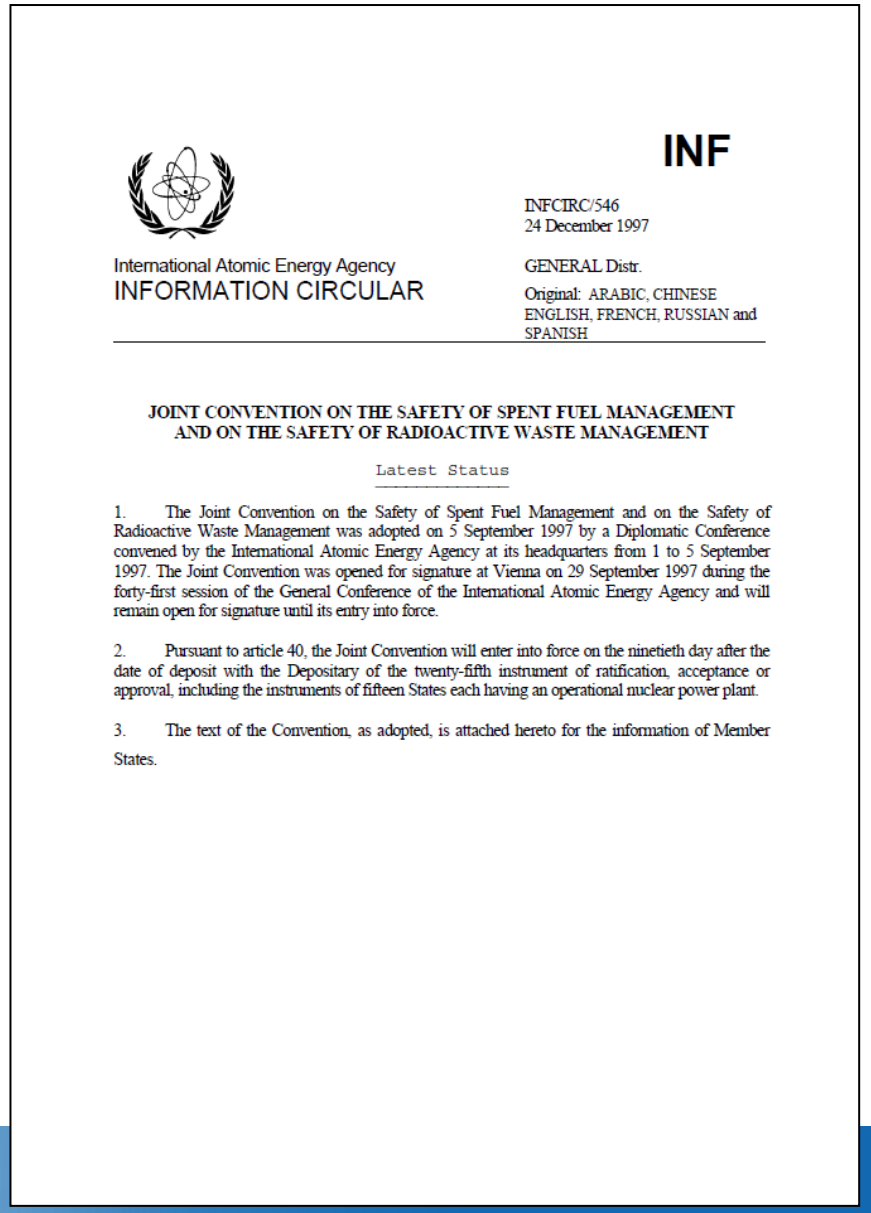
International consensus that…

…spent fuel is a waste

or

a resource



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JOINT CONVENTION ON THE SAFETY OF SPENT FUEL MANAGEMENT AND ON THE SAFETY OF RADIOACTIVE WASTE MANAGEMENT

Latest Status

1. The Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management was adopted on 5 September 1997 by a Diplomatic Conference convened by the International Atomic Energy Agency at its headquarters from 1 to 5 September 1997. The Joint Convention was opened for signature at Vienna on 29 September 1997 during the forty-first session of the General Conference of the International Atomic Energy Agency and will remain open for signature until its entry into force.

2. Pursuant to article 40, the Joint Convention will enter into force on the ninetieth day after the date of deposit with the Depositary of the twenty-fifth instrument of ratification, acceptance or approval, including the instruments of fifteen States each having an operational nuclear power plant.

3. The text of the Convention, as adopted, is attached hereto for the information of Member States.

Joint Convention

“Recognizing that the definition of a fuel cycle policy rests with the State, some States considering spent fuel as a valuable resource that may be reprocessed, others electing to dispose of it”

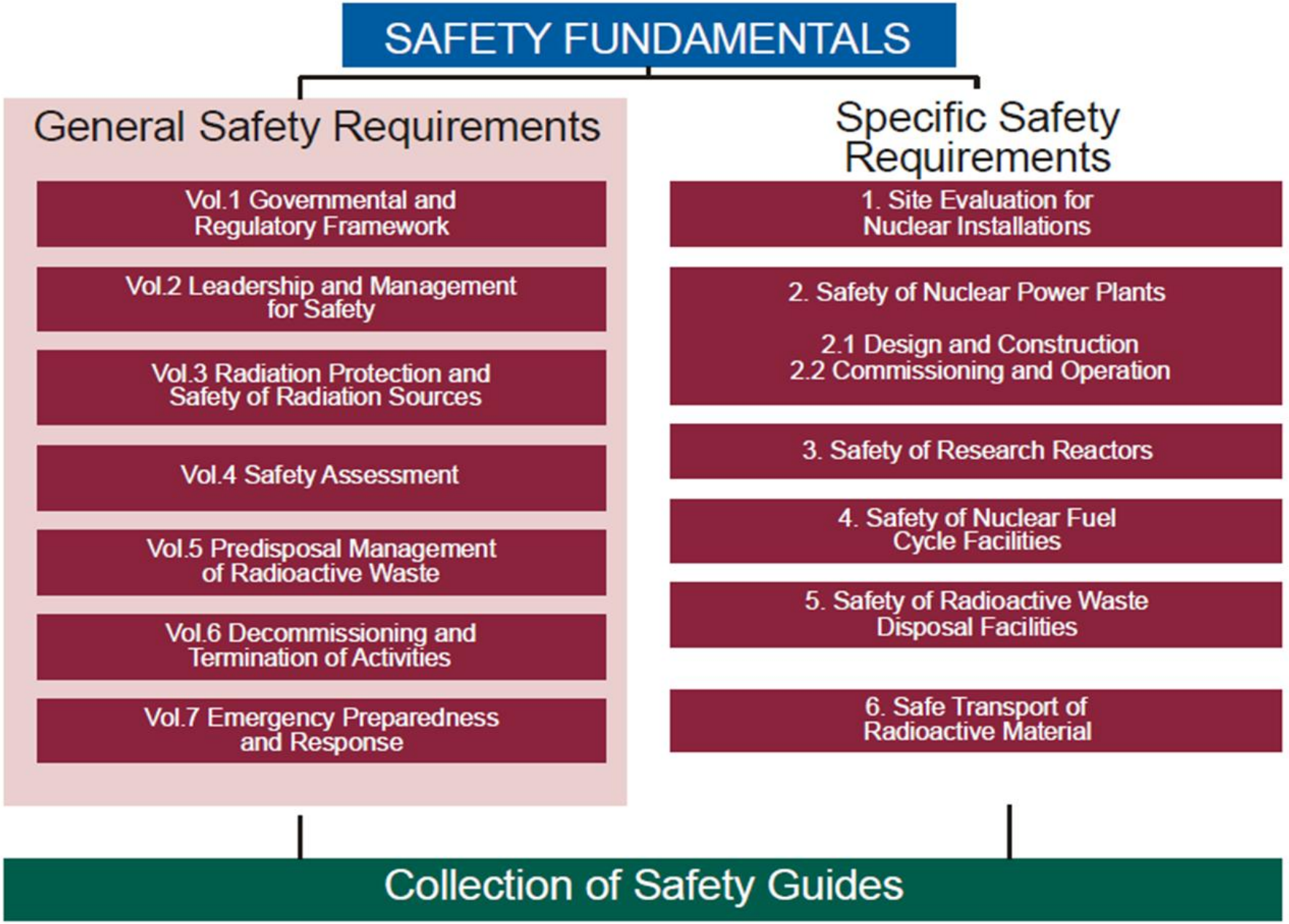
Safety has to be ensured…

…regardless of fuel cycle policy

- *“Recognizing that the same safety objectives apply both to spent fuel and radioactive waste management”*

Joint Convention - objective

“to ensure that during all stages of spent fuel and radioactive waste management there are effective defenses against potential hazards so that individuals, society and the environment are protected from harmful effects of ionizing radiation, now and in the future, in such a way that the needs and aspirations of the present generation are met without compromising the ability of future generations to meet their needs and aspirations”


SAFETY FUNDAMENTALS
General Safety Requirements
Vol.1 Governmental and Regulatory Framework
Vol.2 Leadership and Management for Safety
Vol.3 Radiation Protection and Safety of Radiation Sources
Vol.4 Safety Assessment
Vol.5 Predisposal Management of Radioactive Waste
Vol.6 Decommissioning and Termination of Activities
Vol.7 Emergency Preparedness and Response
Specific Safety Requirements
1. Site Evaluation for Nuclear Installations
2. Safety of Nuclear Power Plants
2.1 Design and Construction
2.2 Commissioning and Operation
3. Safety of Research Reactors
4. Safety of Nuclear Fuel Cycle Facilities
5. Safety of Radioactive Waste Disposal Facilities
6. Safe Transport of Radioactive Material
Collection of Safety Guides

National responsibility and policy

- Establishing legislative and regulatory frameworks
- Adequate system for safe radioactive waste management
- Allocating responsibilities for waste management
- Planning and developing the required capabilities, i.e. facilities and human resources;
- Creating a system for financing waste management
- Involving stakeholders and the public

Some basic elements

- Waste will always be generated
  - Disposal cannot be avoided
- Important to consider all waste streams when defining a spent fuel management policy
- Existing reactors and those under construction will be in operation for many decades
- Generation IV and innovative reactor concepts
  - Uncertain when the first will be constructed

Some basic elements cont.

- Considering today's spent fuel as a resource implies storage over long periods of time
  - Maintaining safety of storage facilities
  - Increased storage capacity
  - Design life and maintenance
- No conflict between direct disposal and reprocessing

Spent fuel as a resource

- More energy per unit uranium originally mined
- Commitment to developing “new” reactors
  - Also reprocessing and fuel fabrication facilities
  - Wait and see is not reasonable
- Storage of existing spent fuel for extended periods of time
- Timely disposal programmes still needed
  - Waste volumes and characteristics differ
- Financial and human resources

Spent fuel as a waste

- Commitment to active disposal programmes
  - Wait and see is not reasonable
- Several decades of storage
- Geological disposal considered safe and mature for implementation
- Financial and human resources

Summary

- Spent fuel is either waste or a resource
  - It is a national responsibility to decide
- Spent fuel management is a long term commitment
  - Wait and see is not acceptable
- No conflict between direct disposal and reprocessing
  - Time schedules are different
- There will always be a need for disposal
  - Consider all waste streams

Thank you!