International Atomic Energy Agency

Current IAEA Decommissioning Activities

M.Hannan and M.Laraia

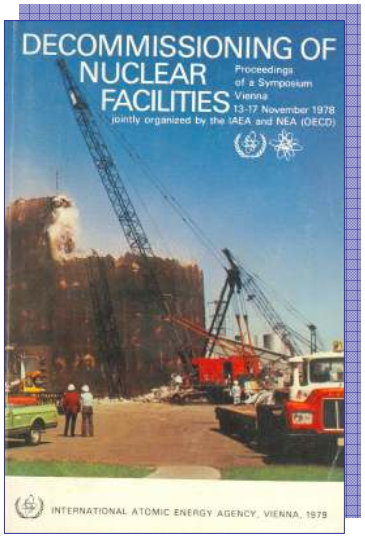
International Decommissioning Network & Decommissioning Peer Review

3rd Nov – 7th Nov 2008, IAEA,Vienna

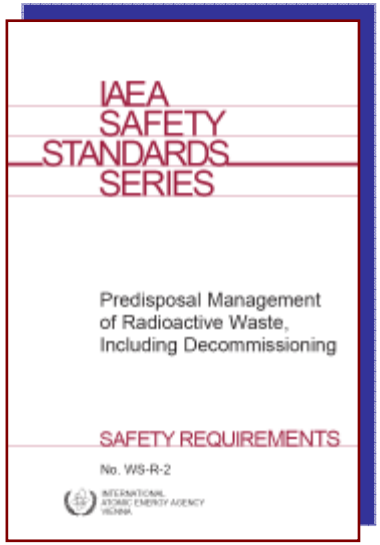
Outline

- Safety standards evolution
- Safety assessment methodology (DeSa project)
- Use of safety assessment in decision making (FaSa project)
- Summary

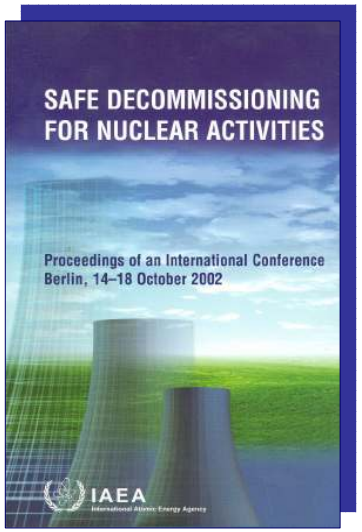
Safety Standards Evolution



(1970s)



(1999)



(2002)

Action Plan

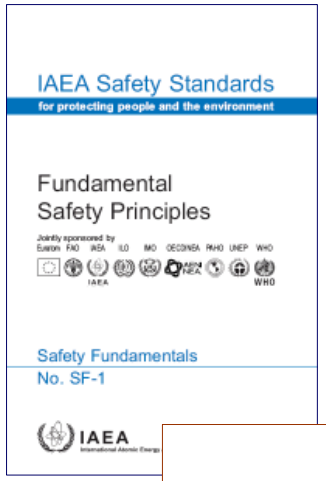
(2004)

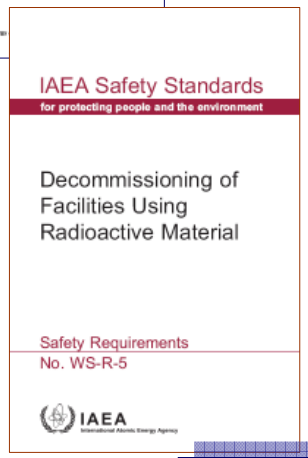
- **Safety Requirements for decommissioning**
- **Revision of existing Safety Guides**
- **International forum for exchange of lessons learned on safety assessment for decommissining**

(2004-6)

(2006)

Safety Standards on Decommissioning





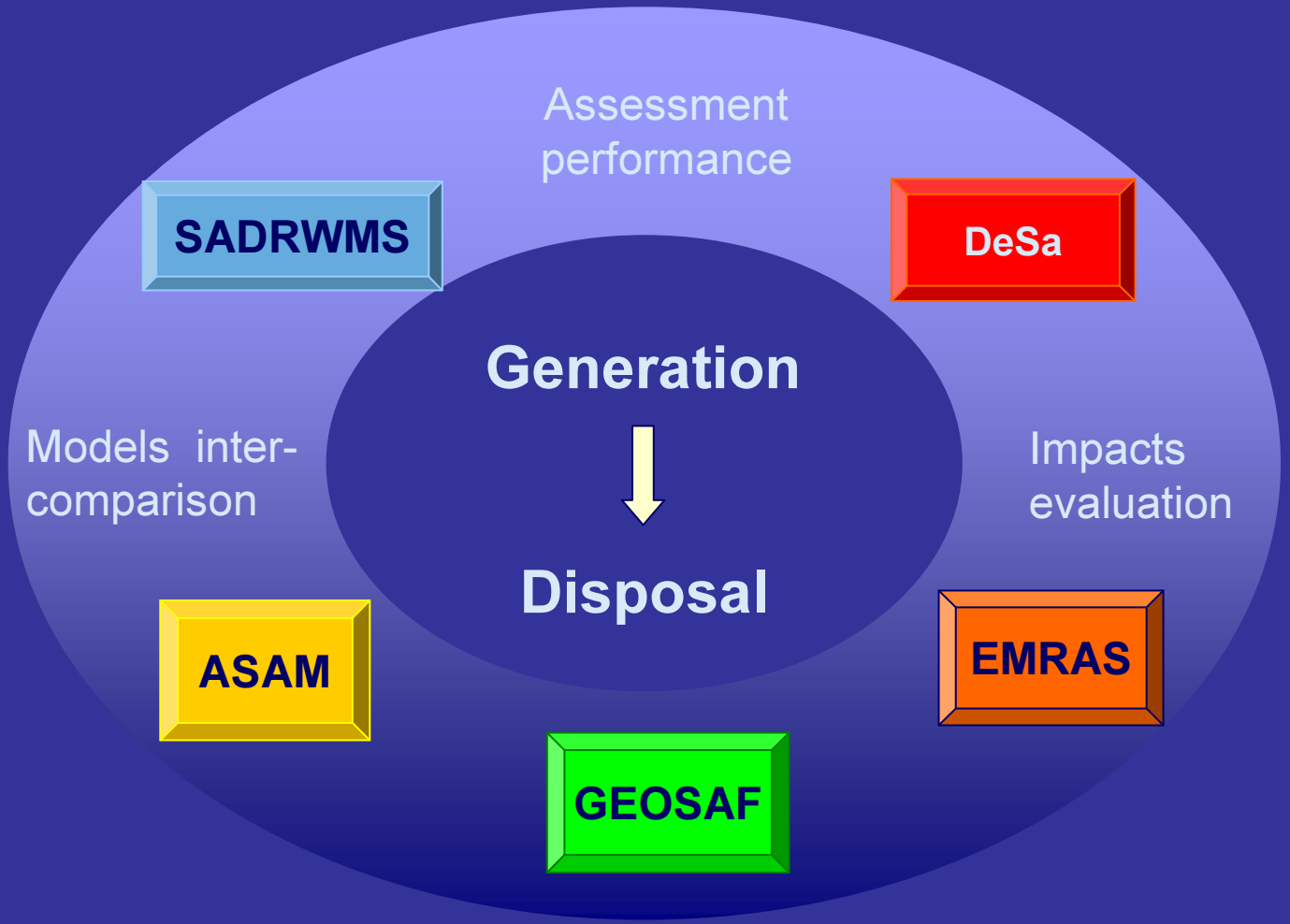
The prime responsibility for safety must rest with the person or organization responsible for facilities and activities that give rise to radiation risks. (Principle 1)

An effective legal and governmental framework for safety, including an independent regulatory body, must be established and sustained. (Principle 2)

The decommissioning plan shall be supported by an appropriate safety assessment covering the planned decommissioning activities and abnormal events that may occur during decommissioning.

Action Plan

The widespread use of safety assessment as an essential tool for ensuring that decommissioning is conducted safely.



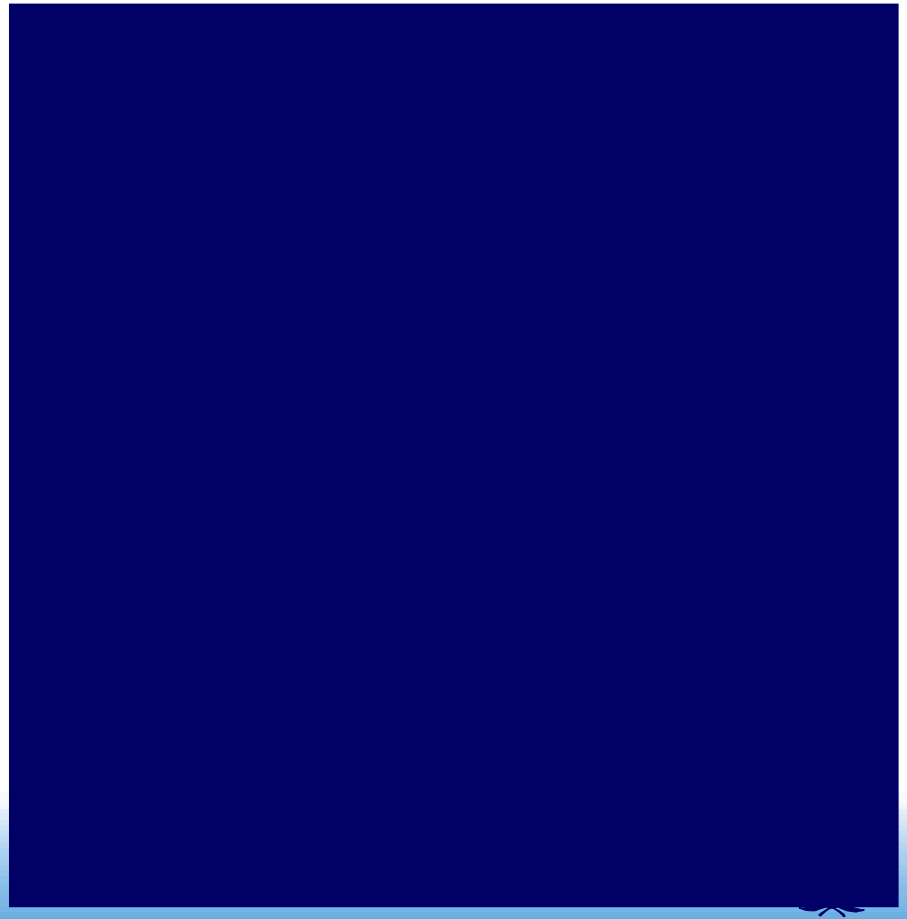
Safety Demonstration Framework for Management of Radioactive Waste and Decommissioning

DeSa Project

Evaluation and Demonstration of Safety during Decommissioning of Nuclear Facilities

(Nov. 2004 – Nov. 2007)

- **Scope**
  - Safety assessment methodology
  - Regulatory review
  - Graded approach
  - All types of facilities
  - All types of decommissioning strategies
  - Radiological hazards
  - Normal and accident conditions



DeSa Project

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- **Scope**
  - Safety assessment methodology
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  - All types of facilities
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Objectives

- Harmonise safety assessment approaches
- Illustrate the methodology on different types of facilities
- Develop recommendations on the regulatory review of such assessments
- Provide a forum for exchange of information between experts from IAEA Member States

DeSa Project (cont.)

Over 100 participants from 33 Member States

Armenia, Australia, Belgium, Brazil, Bulgaria, Canada, China, Croatia, Czech R., Denmark, Egypt, France, Germany, Hungary, India, Iraq, Italy, Japan, Korea R, Lithuania, Netherlands, Pakistan, Romania, Russian F., Serbia, Slovenia, S. Africa, Slovakia, Sweden, Turkey, UK, Ukraine and USA

- 2007 – 9 Working Group meetings
- Majority financially supported by the Member States

Example :France – ASN, CEA and IRSN

UK – NII, NDA, Sellafield and UKAEA (Dounreay)

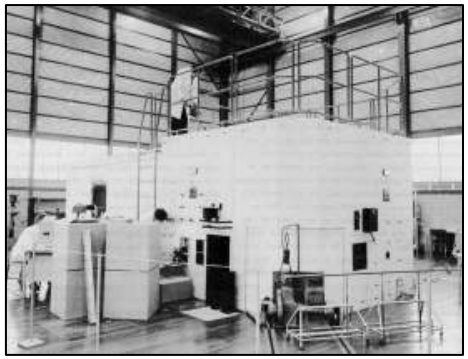
DeSa Project Outcomes

I Harmonised safety assessment methodology developed

- Main steps defined and examples provided
- Decommissioning projects Sweden, Ukraine, China, etc.

II Safety assessment for real facilities developed

NPP



Research reactor

Pu Laboratory

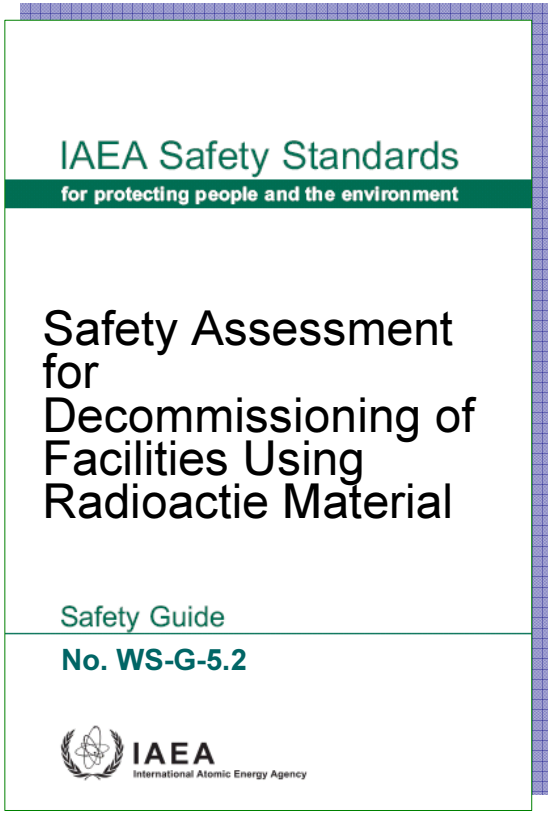
III A procedure for review of safety assessments developed and applied

IV Recommendations on application of graded approach

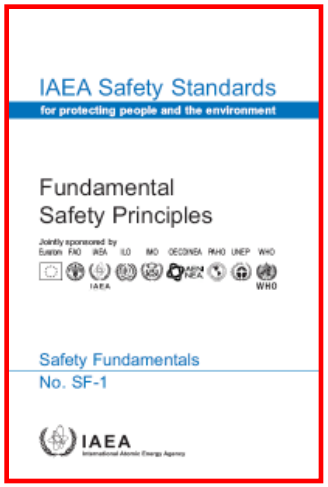
DeSa Project Outcomes

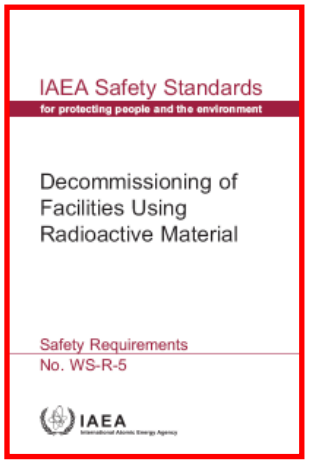
International Level

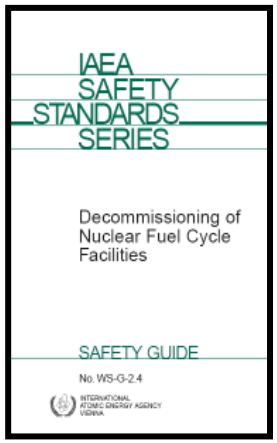
- Input to the new IAEA Safety Guide WS-G-5.2
- Safety Report (4 vol) to be published in 2008
- Network of specialists in the field of decommissioning
- Development and application of SAFRAN tool
- Input to IAEA support to MS (incl. peer review service on decommissioning)
- Input to the WENRA Reference Levels

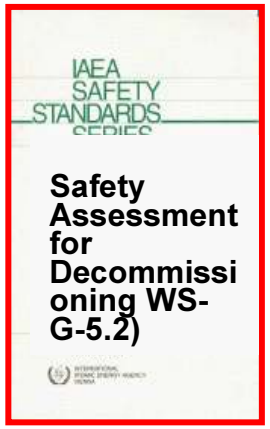


Safety Standards on Decommissioning









revision

print

draft

International Atomic Energy Agency

International Atomic Energy Agency

Follow-up to DeSa

- FaSa Project -

(2008-2011)

Use of Safety Assessment in Planning and Implementation of Decommissioning

Objectives

A To explore and develop harmonized approaches

- **Use of safety assessment in development and review of decommissioning plans through facility lifecycle**
- **Use assessment results in the conduct of decommissioning activities (e.g safety functions and controls)**
- **Update of safety assessment and operator/regulator review of safety assessments from lessons on application of DeSa methodology**

Objectives

A To explore and develop harmonized approaches

- Use of safety assessment in development and review of decommissioning plans through facility lifecycle
- Use assessment results in the conduct of decommissioning activities (e.g safety functions and controls)
- Graded approach in the application of safety assessment
- Update of safety assessment and operator/regulator review of safety assessments from lessons on application of DeSa methodology

B Demonstrate the application of these recommendations on selected real facilities

Objectives

A To explore and develop harmonized approaches

- Use of safety assessment in development and review of decommissioning plans through facility lifecycle
- Use assessment results in the conduct of decommissioning activities (e.g safety functions and controls)
- Graded approach in the application of safety assessment
- Update of safety assessment and operator/regulator review of safety assessments

B Demonstrate the application of these recommendations on selected real facilities

C Provide a forum for exchange of information and lessons learned

Scope

- ✓ Use of safety assessment results
  - Decommissioning plans
  - Conduct (e.g. working procedures)
- ✓ Planning, conduct and termination
  - Preliminary and detailed assessments
  - Periodic update, review and re-assessment
- ✓ DeSa methodology
- ✓ All facilities - single and multi-facility sites
- ✓ Immediate and deferred strategies
- — Except waste disposal, tailings and entombment

Planned FaSa Activities

Decommissioning Planning WG

Decommissioning Conduct WG

Completion of Decommissioning WG

Mining and Mineral Processing Test Case

NPP WG

Research Reactor Test Case

Fuel Fabrication Test Case

Implementation of Safety Assessment Results WG

Review of Use of Safety Assessment Results WG

Proposed Test Cases

NPP

WWER

70 MW

1966-1990

Fuel Fabric. Facility

MOX fuel

1971-1992

Complex research reactor

35 MW

Pool type reactor

1963-1997

Mineral process. facility

Gold and uranium

1987-2002

Opening meeting of FaSa project

17-21 Nov. 2008, IAEA, Vienna

(http://www-ns.iaea.org/tech-areas/waste-safety/fasa/default.htm)

Expected outcomes

International Level

DeSa project

FaSa project

FaSa follow-up project

Safety Assessment Methodology

Use of Safety Assessment Results in Planning, Conduct and Termination

Safety Assessment and Decommissioning Plan/Safety Case

WS-G-5.2

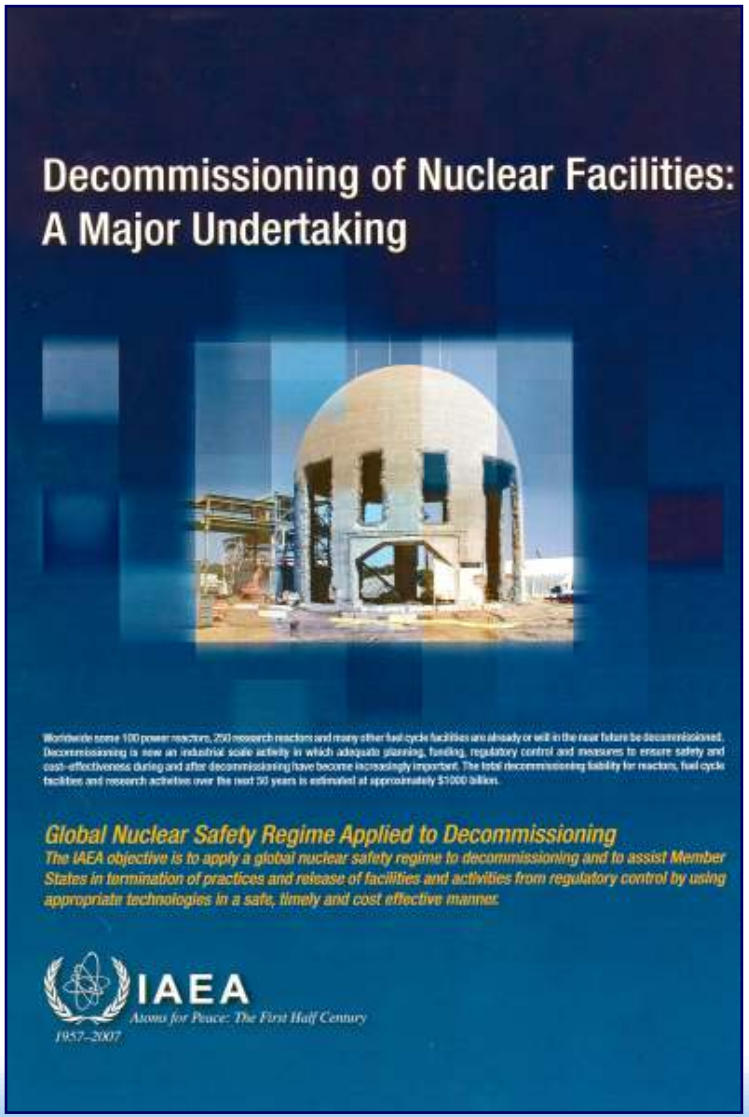
Revision of WS-G-2.1, 2.2. and 2.4.

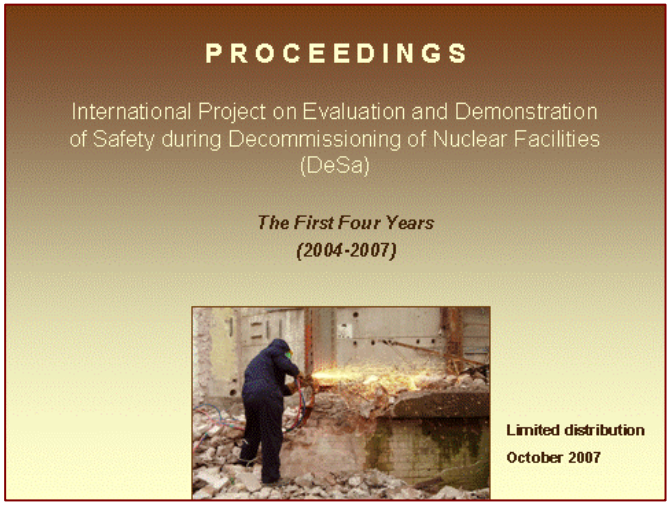
Revision of WS-R-5

Summary

- **Safety assessment methodology (DeSa)**
  - Reference safety assessments developed
  - Regulatory review procedure recommended
  - Recommendations on the application of the graded approach
- **Application of results (FaSa)**
  - More specific and with practical examples
  - Evolution of DP during facility lifetime
  - Graded approach
- **International projects very efficient, important and useful mechanisms**
- **International assistance**
  - Legal and regulatory infrastructure
  - Implementation of decommissioning projects
- **International activities**
  - Safety Standards development (WS-G-5.2), peer reviews, demonstation projects, etc.

Further Information





http://goto.iaea.org/decommissioning

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