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Decommissioning Technology IAEA Activities: update Oct 2007

Michele Laraia (Waste Technology)

Presented by Paul Dinner

Recent Program Activities and Publications

- **Facilitating the Transfer of Sustainable Technologies for Decommissioning of Facilities (L.6.01)**
- **Facilitating Transfer of Know-How on Decommissioning of Research Reactors (D.2.04)**
- **Transferring Technologies for the Predisposal Management of Radioactive Waste (L.4.01)**
- **Ongoing Base Program activities leading to Publications**
- **Technical Co-operation Activities (Technology)**

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Facilitating the Transfer of Sustainable Technologies for Decommissioning of Facilities

- **Redevelopment of Nuclear Facilities after Decommissioning (TRS# 444, 2006)**
- **The Decommissioning of Underground Structures, Systems, and Components (TRS # 439, 2006)**
- **The Dismantling of Contaminated Stacks (TRS# 440, 2005)**

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Facilitating the Transfer of Sustainable Technologies for Decommissioning of Facilities (cont'd)

- **Expand Existing DBs on NPPs (PRIS) to include decommissioning information (now online)**
- **Developing a computerized framework included in the existing PRIS database on decommissioning data:**
 - **Collect strategies for decommissioning**
 - **Compile phases and milestones of projects**
 - **Disseminate decommissioning references**
- **Currently, some 50% response by MSs. Missing countries include UK, Germany (partly)**
- **Modifications to PRIS completed. Separate access provided to input decommissioning data.**
- **Summary published first time in RDS-2 , 2007 (Table 23)**

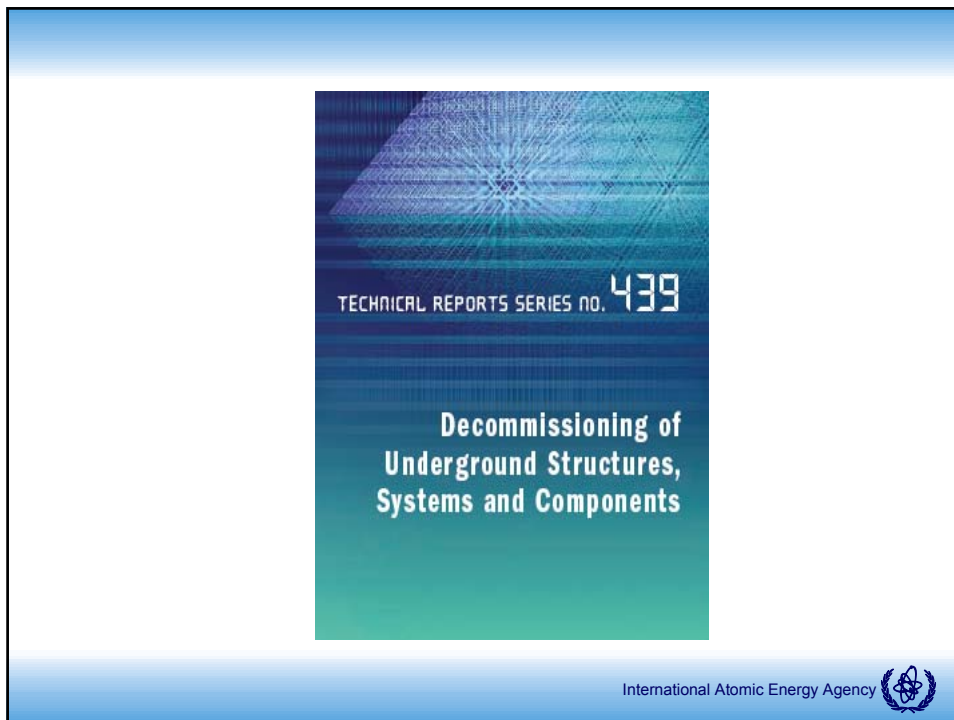
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Transferring Technologies for the Predisposal Management of Radioactive Waste

- **Management of Problematic Waste and Material Generated During the Decommissioning of Nuclear Facilities (TRS# 441, 2006)**
- **Release of large amounts of decommissioning materials with lower activity levels: strategies and methodologies (approved for publication)**

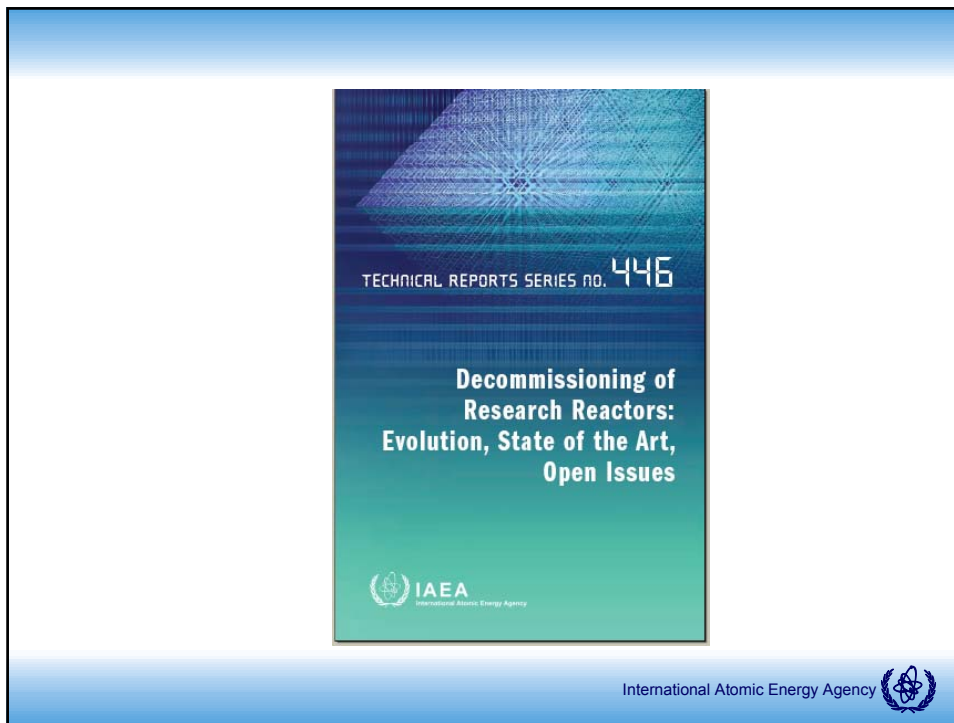
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Facilitating Transfer of Know-How on Decommissioning of Research Reactors

- **Decommissioning of RRs: Evolution, State-of-the-Art, and Open Issues (TRS # 446, 2006)**
- **Expand Existing DB on RRs (RRDB) to include decom info (comprehensive data for all shutdown/decommissioning RRs attached to TRS # 446 as a CD-ROM)**



ADDITIONAL IAEA DECOMMISSIONING PUBLICATIONS				
Technology	Management	Implementation	Development	Special Topics
Radiological Characterization of Shutdown Nuclear Reactors for Decommissioning Purposes, TRS-389 (1998)	Organization and Management for the Decommissioning of Large Nuclear Facilities, TRS-399 (2000)	Safe Enclosure of Shutdown Nuclear Installations, TRS-375 (1995)	Design and Construction of Nuclear Power Plants to Facilitate Decommissioning, TRS-382 (1997)	A Proposed Standardised List of Items for Costing Purposes in the Decommissioning of Nuclear Installations - Interim Technical Document, co-operation with OECD/NEA - OECD/NEA, Paris 1999
State-of-the-art Technology for Decontamination and Dismantling of Nuclear Facilities, TRS-395 (1999)	Record keeping for the Decommissioning of Nuclear Facilities: Guidelines and Experience, TRS-411 (2002)	Decommissioning of Nuclear Facilities Other than Reactors, TRS-386 (1998)	New Methods and Techniques for Decontamination in Maintenance or Decommissioning Operations - Results of a Co-ordination Research Programme, 1994-1998, IAEA-TECDOC-1022 (1998)	TRS = Technical Reports Series, consolidated guidance TECDOC = TEChnical DOCUMENT, innovative, interim or controversial points/areas
Decommissioning of Stacks at Nuclear Facilities, TRS-440 (2005)	The Transition from Operation to Decommissioning of Nuclear Installations, TRS-420 (2004)	Decommissioning of Small Medical, Industrial and Research Facilities, TRS-414 (2003)	On-site Disposal as a Decommissioning Strategy, IAEA-TECDOC-1124 (1999)	
Decommissioning of Underground Structures, Systems and Components, TRS-439 (2006)	Planning, Organizational and Management Aspects of Decommissioning: Lessons Learned, IAEA-TECDOC-1394 (2004)	The Decommissioning of WWER-Type Nuclear Power Plants, IAEA-TECDOC-1133 (2000)	Decommissioning Techniques for Research Reactors- Final report of a Co-ordinated Research Project 1997-2001, IAEA-TECDOC-1273 (2002)	
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Ongoing Activities Close to Publication (I)

CRP on Innovative and Adaptive Technologies in Decommissioning of Nuclear Facilities (L.7.01) :

- final RCM at Rez, Czech R. 3-7 Dec 2007)
- TECDOC summarizing CRP achievements to be published in 2008
- **CRP on Disposal Aspects of Low and Intermediate Level Decommissioning Waste (2002-2006, L.4.03);**
 - TECDOC under preparation

Ongoing Activities Close to Publication (II)

- TECDOC to collect information on stakeholders' involvement in decommissioning projects focussing on countries with limited resources (TBP 2008)
- TECDOC to collect information on social-economic impacts of decommissioning (app. for pub.)
- TRS on long term preservation of information in deferred decommissioning projects (app. for pub)
- TRS on decommissioning of research reactors and other small nuclear facilities by making optimal use of limited resources. Contains updated data bank for all shutdown/decommissioning RRs attached as a CD-ROM (app. for pub)

Technical Co-operation Activities (I)

RER 3 005 (Ongoing 2007-9)

- **Regional Workshop for Europe on Decommissioning of Nuclear Power Plants (jointly NEFW- NSRW, review/planning meeting at Greifswald, Germany 27-29 November 2006; next meeting at Trnava, Slovakia 19-22 November 2007);**
- **Main mechanism: submission by MSs of DPs or parts thereof (costs, DBs) for IAEA review (EMs). Alternative mechanisms possible (e.g. local experts travelling abroad for consultation and reporting). Discussion at periodic progress review meetings**
- **Participating countries: Armenia; Bulgaria; Croatia & Slovenia; Hungary; Russia; Slovakia; Ukraine**
- **Merged with a similar Regional TC project for Europe on Research Reactors (15 MSs potentially involved, limited response so far. Similar mechanism adopted.**

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Technical Co-operation Activities (II)

National TC projects on Planning for and Implementation of Decommissioning (Research Reactors):

- **China**
- **Georgia**
- **Latvia**
- **Romania**
- **Serbia (underway)**

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Additional Decommissioning Activities

- **Launch of the International Decommissioning Network (At the General Conference, Sept/07)**
- **Co-operation with in-house and external organizations (NEA LC & WPDD) active in decommissioning**
- **Dissemination of information through presentations given at international conferences, especially the Athens Conference 11-15 December 2006**

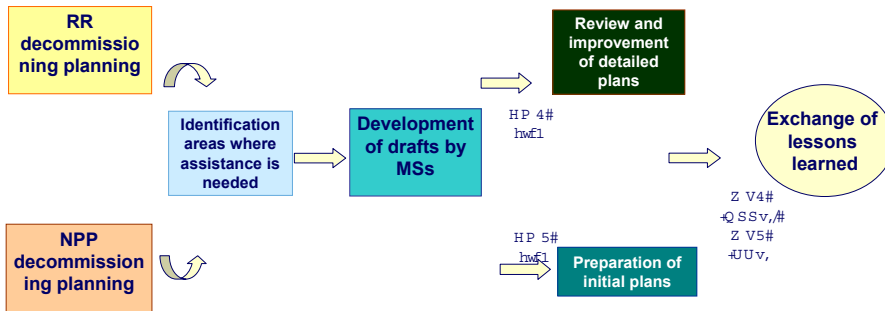
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New “Themes” for Decommissioning

- **Linking together the “lessons learned” from NPP and other large facilities and RR and smaller facilities**
- **The importance of “Closing” the facility-cycle: Facility use after decommissioning**
- **Sharing “hands on” experience on decommissioning between those that have it and those that need access to it**
- **Enhanced “linkage” between Decommissioning Projects and activities within and beyond IAEA**

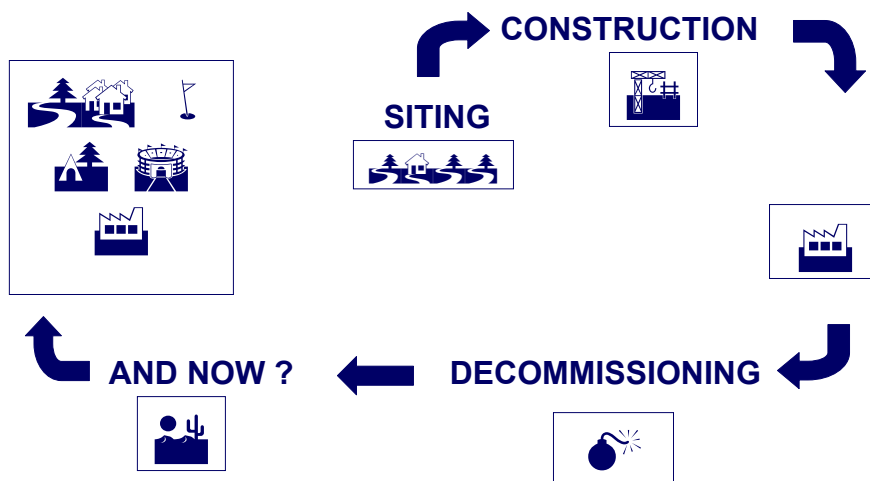
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A path forward and main mechanism for RER 3 005



Distinct components for NPPs and RRs

Closing the nuclear cycle: reuse it!



“International Decommissioning Network (IDN)”

A Vision for the IDN:

“ Prompt, open, and efficient worldwide sharing of practical and effective decommissioning experience leading to safe, economic and timely dismantlement of dis-used nuclear facilities”

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International Decommissioning Network Objectives

- Complement existing Agency activities with more **demonstration projects** giving practical **hands-on and user-oriented** experience
- Facilitate **sharing of experience**
- **Raise awareness of need** and **encourage decision-makers** to build a **funding framework**
- Attract **additional resources** to the field and **accelerate the pace** of decommissioning activities worldwide
- Act as a **“Network of Networks”** working with existing **regional and inter-regional projects & internal and external networks** (DESA, NEA+)

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International Decommissioning Network Working Together

- **IDN will bring together those with relevant decommissioning knowledge and experience and those who need to apply it...and provide means to build and sustain relationships.**
- **The IDN builds on principles, and experience of the Network of Centres of Excellence for Underground Research Facilities**
- **Many MS organizations - leaders in the decommissioning field – have expressed willingness to share knowledge & experience.**
- **Support the implementation of the IAEA “Action Plan” on decommissioning**

Planned Work on Documentation for Decommissioning (I)

Handbook on decontamination and dismantling techniques for small medical, industrial and research facilities:

- **Of interest primarily to developing countries**
- **Emphasis on smaller rather than larger installations (e.g. less interest for NEA)**
- **Technology-oriented**
- **Follow up to TRS 395 (1999) and TRS 414 (2003)**

Planned Work on Documentation for Decommissioning (II)

Costs for decommissioning of research reactors:

- **Follow NEA/IAEA/EC proposed “Standardized List of Items for Costing Purposes”**
- **Build on TECDOC-1476 (2005) Financial Aspects of decommissioning**
- **“spreadsheet approach” Based on simplifying algorithms used for NPP cost calculation**
- **Experts workshop by mid-2008, draft document by end of 2008**

Planned Work on Documentation for Decommissioning (III)

Operating experience and lessons learned from reuse of decommissioned sites:

- **Widespread distribution of such facilities (both developed and developing countries)**
- **SAGNE focus on end point of decommissioning projects**
- **Focus on stakeholder involvement (some reuse issues are driven by stakeholders’ expectations)**
- **Follow up to TRS 444 (2006) with more detail on practical experience and feedback**

Planned Work on Documentation for Decommissioning (IV)

Co-ordinated Research Project on planning, organizational and management aspects for decommissioning of nuclear facilities:

- **Widespread distribution of such facilities (both developed and developing countries.)
=> Representational CRP mix (50:50)**
- **Includes element of stakeholder involvement**
- **Follow up to TRS 399 (2000) and TECDOC-1394 (2004)**

Planned Work on Documentation for Decommissioning (V)

Performance indicators in nuclear decommissioning projects:

- **Focus on planning, organizational and management aspects – providing a basis for project management**
- **Include measures related to stakeholder involvement => performance indicators to be reported to stakeholders**
- **Follow up to TRS 399 (2000) and TECDOC-1394 (2004) with more detail on key indicators of decommissioning success**



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The new Nuclear Energy Series Publications Structure and the process

BACKGROUND

- NE develops various types of documents
 - TECDOCs, TRS and others
 - guidance documents, workshop presentations,
 - CRP results...
- However, there is no structure that provides consistent, systematic & effective document categorization
- This affects ease of use documents
- Reference material should be usable as a solid basis for NE's technical advice to Member States

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The Nuclear Energy Series

Incorporates relevant existing documents, but adds structure and increased visibility and credibility by

- Providing visible hierarchy structure and improve recognition of NE documents;
- Ensuring quality through structured independent review;
- Ensuring continuity of documents through established preparation and review process and renewal/revision period;
- Providing standard approach to document preparation; and,
- Providing an underlying basis for supporting TC and Regular budget activities and services.

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