

Overview of the IAEA Activities on Safety of Research Reactors

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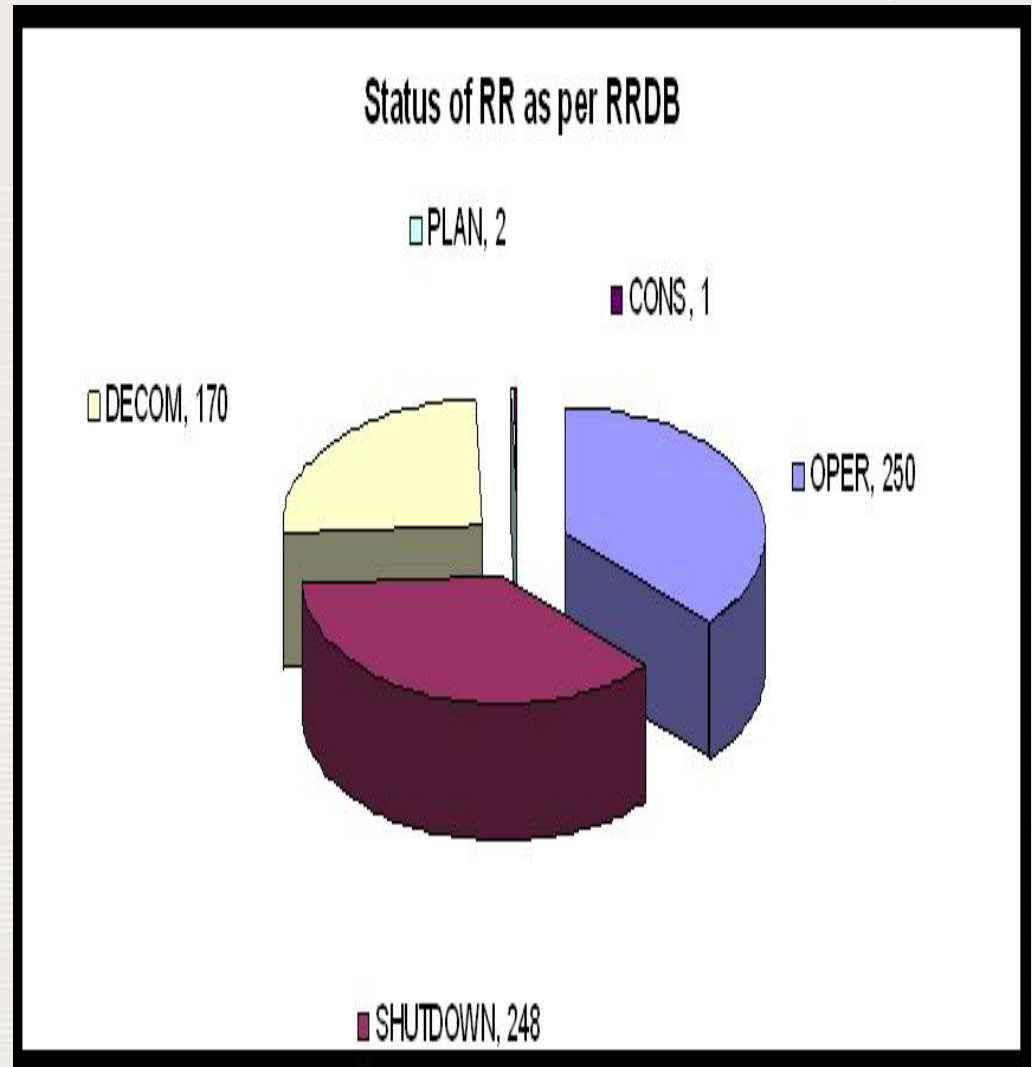


Agenda

- Status of Research Reactors
- Safety Issues and Trends
- Future Challenges
- Outlines of the RRSS Programmes and Activities

Status of Research Reactors

- 761 RRs were built to date of which 170 RRs were decommissioned.
- Two-thirds of the operating RRs (250) are more than 30 years old.
- 248 reactors are in shutdown state.

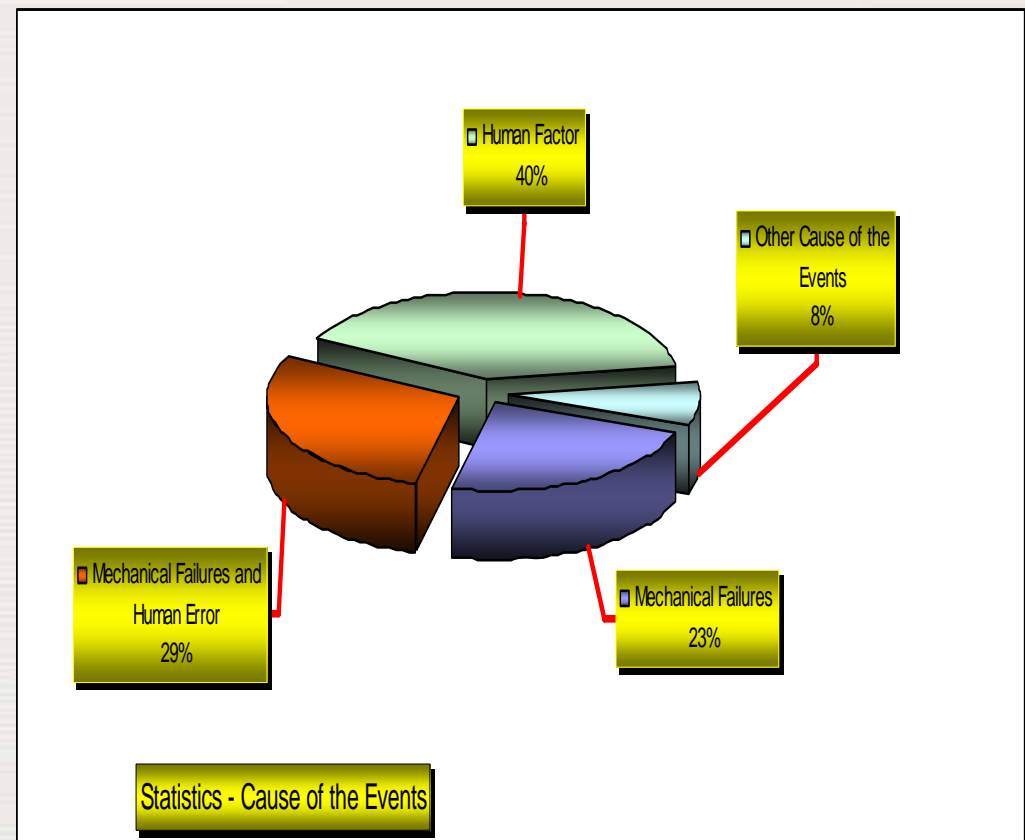


Safety Issues and Trends (1)

Ageing:

- Ageing of components is one of the most important root causes of the incidents reported to the IRSRR.

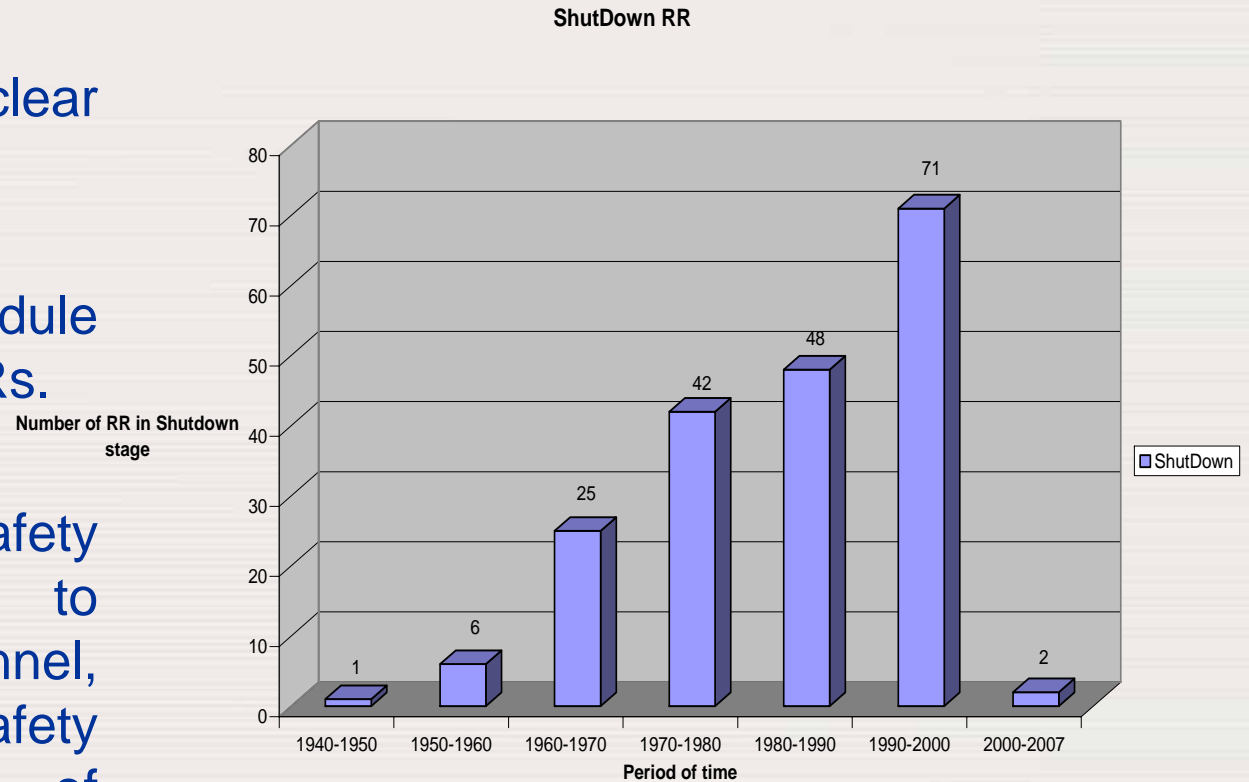
- Statistics on root causes of incidents reported to IRSRR



Safety Issues and Trends (2)

RRs in shutdown state:

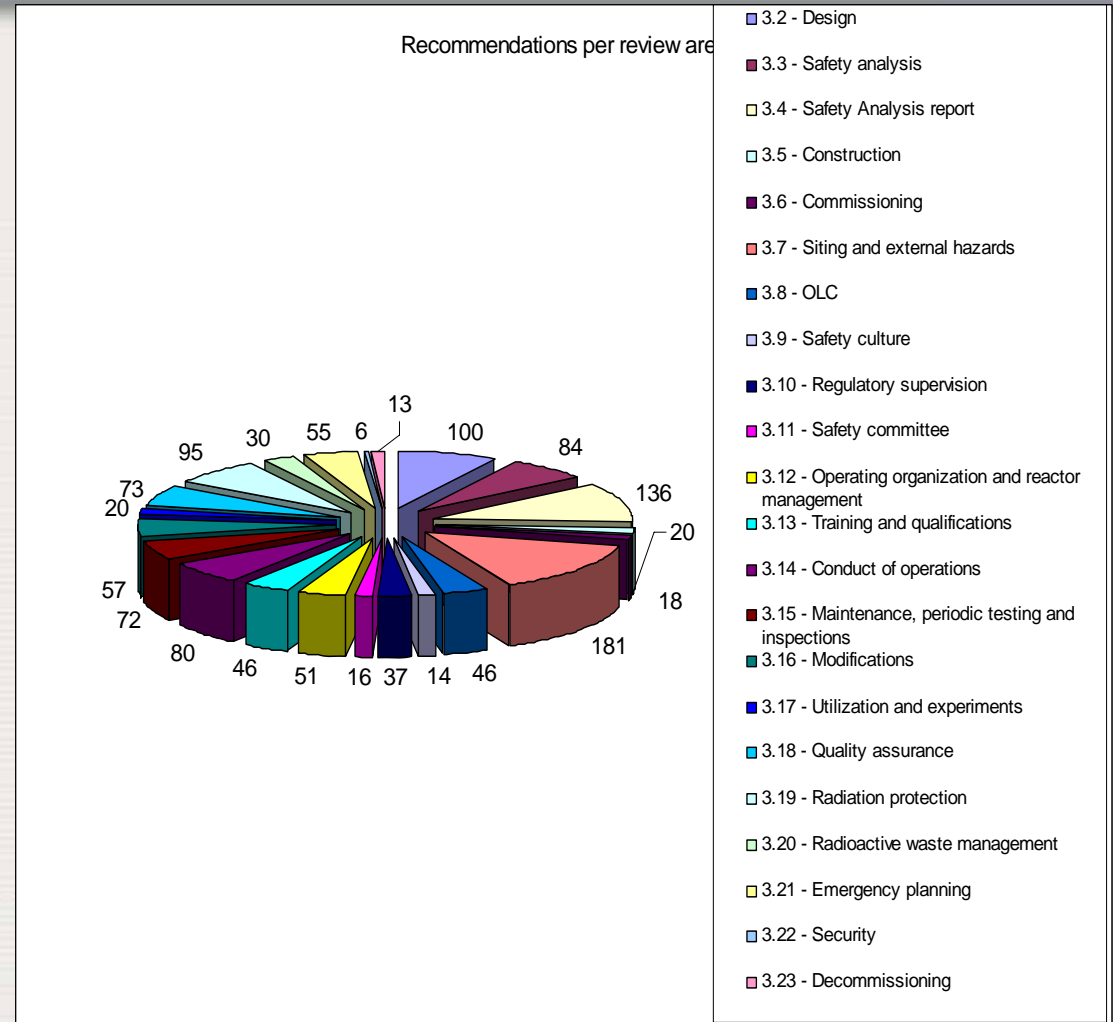
- Many of these RRs has no clear plans for their future.
- Very limited operating schedule for many of the operating RRs.
- Both cases represent safety concerns relating to qualification of personnel, maintenance of the safety related SSCs, preparation of safety documentation, etc.



Safety Issues and Trends (3)

The analysis of the results of the IAEA safety Review Missions showed:

- Out-of-date or incomplete safety documentation (SAR, OLCs, emergency plans);
- Inadequate regulatory supervision of RRs in many countries.



Safety Issues and Trends (4)

IAEA Survey on Safety Status of RRs

- The survey has been initiated by the IAEA in 2002, in accordance with the Safety Enhancement Plan for RRs.
- Responses received from 88 % of operating RRs, and 63 % of those RRs listed as shutdown.
- Responses showed the need to increase attention to:
 - Quality assurance programme;
 - Waste management programme;
 - Off-site emergency plan.

Safety Issues and Trends (5)

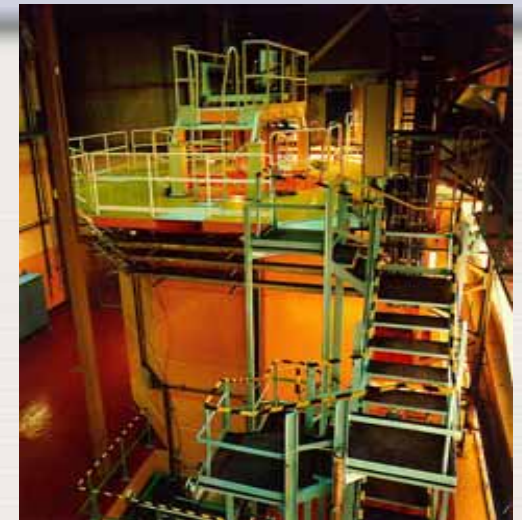
MS self-assessment on application of the Code of Conduct

- Two regional Meetings on application of the Code were held in 2006.
- The results of self-assessment, aimed at highlighting the status of infrastructure for safety and identifying areas needing improvement, showed the need to:
 - Increase the attention to commissioning of modifications and experiments;
 - Establish criteria, and perform accordingly, site re-evaluation for existing RRs;
 - Address human factors in all the phases of RRs lifetime;
 - Improve the capability to prepare the safety documentation for decommissioning and to establish criteria for release from regulatory control of decommissioned RRs.

Future Challenges

- Although some MS have self-assessment capabilities for the safety review of RRs, more efforts are needed to ensure that all MS have this capability;
- Continuing need to ensure safety associated with the core conversion from HEU to LEU;
- Coordination with other international organizations regarding safety of RRs to ensure coherence among programmes.

Research Reactor Safety Section-NSNI-IAEA



To enhance the safety of research reactors worldwide.



Research Reactor Safety Section-NSNI-IAEA

- RRSS provides for the development and implementation of an international safety enhancement plan for research reactors and fuel cycle facilities.
- This includes the monitoring of research reactors subject to Project and Supply Agreement, and assisting MS with such reactors in fulfilling relevant safety obligations.

RRSS Programme and Activities (1)

- The issues and trends, and the future challenges are considered in the RRSS Programme on safety of RRs.
- The programme entails four projects:
 - Enhancing the safety of research reactors.
 - Monitoring and safety enhancement of RRs under agreement.
 - Fostering international exchange of information on safety aspects of RRs.
 - Assisting on safety aspects relating to protection against sabotage for RRs.

RRSS Programme and Activities (2)

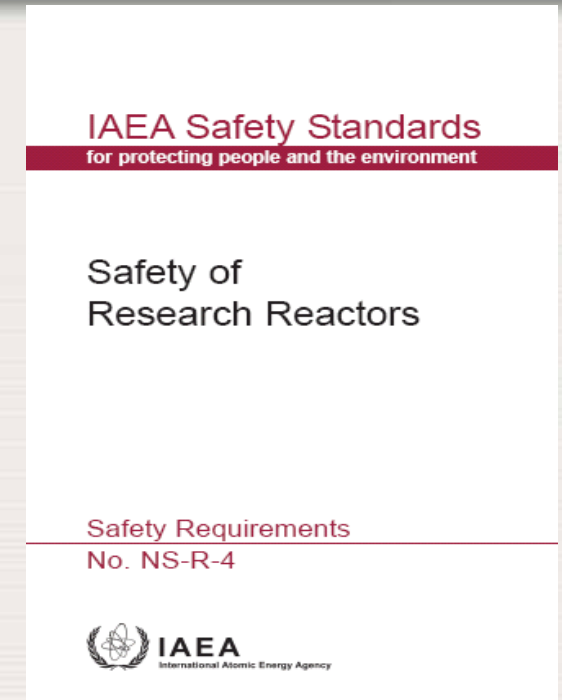
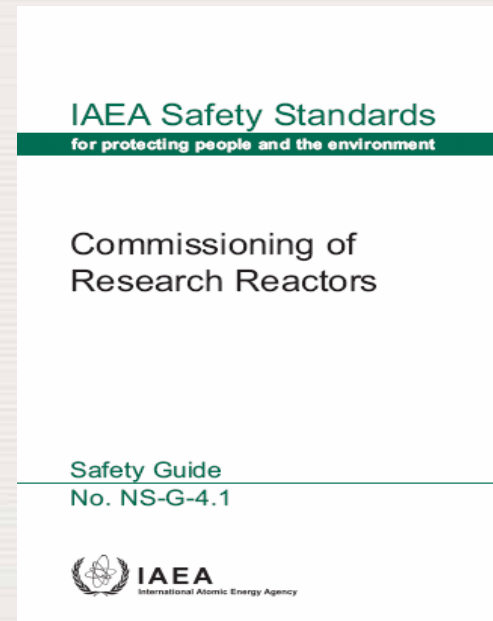
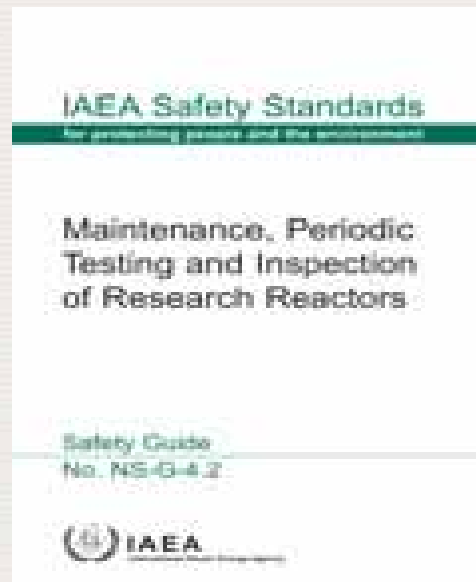
- Providing assistance in application of the Code of Conduct (national, regional/international meetings and training):
- Recent and forthcoming activities include:
 - Open-Ended Meeting in 2005;
 - Regional Meeting for Africa in 2006;
 - Regional Meeting for Eastern Europe in 2006;
 - Regional Meeting for Asia, March/April 2007;
 - Regional Meeting for Latin America, 2007;
 - International Meeting is planned for 2008.

RRSS Programme and Activities (3)

- Developing Safety Standards for RRs and promoting their applications;

Recently published SS:

- NS-R-4, NS-G-4.1, NS-G-4.2.
- Another 4 SGs will be published in 2007.



RRSS Programmes and Activities (4)

- Conducting INSARR and other safety review missions, and assisting in the implementation of recommendations provided;

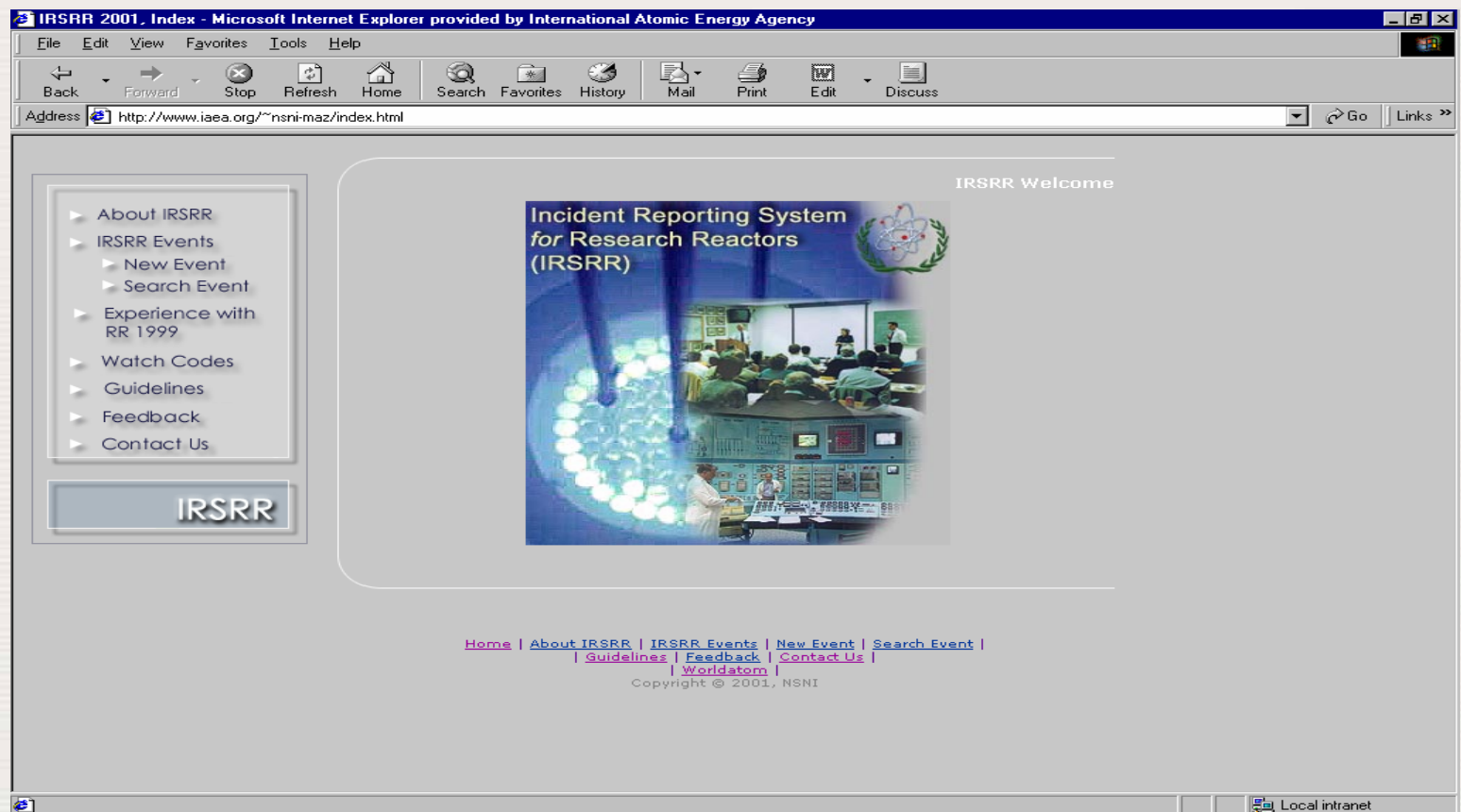


RRSS Programme and activities (5)

- Providing assistance to develop and enhance self-assessment capabilities for safety review of RRs;
- Ascertaining in improving regulatory supervision of RRs;
- Promoting the use of research results in safety assessments and harmonization of data and approaches used in the safety analysis through conduct of CRPs;
- Establishing a web-based forum as a tool for continuous exchange of information on safety aspects, reducing the isolation of small organizations with limited resources;
- Cooperating with international organizations on RRs safety matters;

RRSS Programme and activities (6)

- Operating the IRSRR and organizing meetings for exchange of operating experience and lessons learned from events;



The screenshot shows a Microsoft Internet Explorer browser window displaying the IRSRR 2001 website. The browser's address bar shows the URL <http://www.iaea.org/~nsni-maz/index.html>. The website content includes a navigation menu on the left with the following items: About IRSRR, IRSRR Events (with sub-items New Event and Search Event), Experience with RR 1999, Watch Codes, Guidelines, Feedback, and Contact Us. A prominent button labeled "IRSRR" is located below the menu. The main content area features a large graphic titled "Incident Reporting System for Research Reactors (IRSRR)" which depicts a control room with several operators at consoles. To the right of the graphic, the text "IRSRR Welcome" is visible. At the bottom of the page, there is a footer with a horizontal menu of links: Home, About IRSRR, IRSRR Events, New Event, Search Event, Guidelines, Feedback, Contact Us, and Worldatom. Below these links, the copyright notice "Copyright © 2001, NSNI" is displayed. The browser's status bar at the bottom right indicates "Local intranet".

RRSS Programmes and Activities (7)

- Providing assistance on safety aspects related to the fuel management and core conversion;
- Organizing training activities on relevant safety issues;
- Providing assistance for improvement of ageing management programmes, development of decommissioning plans, and emergency plans;
- improving safety management and promoting safety culture in the operating organizations;

RRSS Programme and Activities (8)

- Operating a follow-up system for monitoring the safety of RRs under agreement with the IAEA, which is based on collection and analysis of data on safety performance indicators and dissemination of operating experience;
- Providing assistance to enhance awareness and understanding of the synergy between safety and security and improving protection against sabotage of RRs;
- Conducting TC and EBP activities related to the safety of RRs.

Conclusions

- The IAEA programme on the safety of RRs is currently focusing on the effective application of the Code of Conduct and completing the corpus of comprehensive safety standards that support its application.
- Priorities are given to improve the regulatory supervision, self-assessment capabilities, and dissemination of operating experience.
- Improving synergy between safety and security and cooperating with other international organizations in safety matters of research reactors are also considered by the programme.

International Conference on Research Reactors- 5-9 November 2007, Sydney, Australia

Deadline for the extended synopses is 19 April 2007

Conference web page
www.iaea.org

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Safe Management and Effective Utilization
Sydney
5-9 November 2007

Organized by the
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