

INSARR: Integrated Safety Assessment for Research Reactors

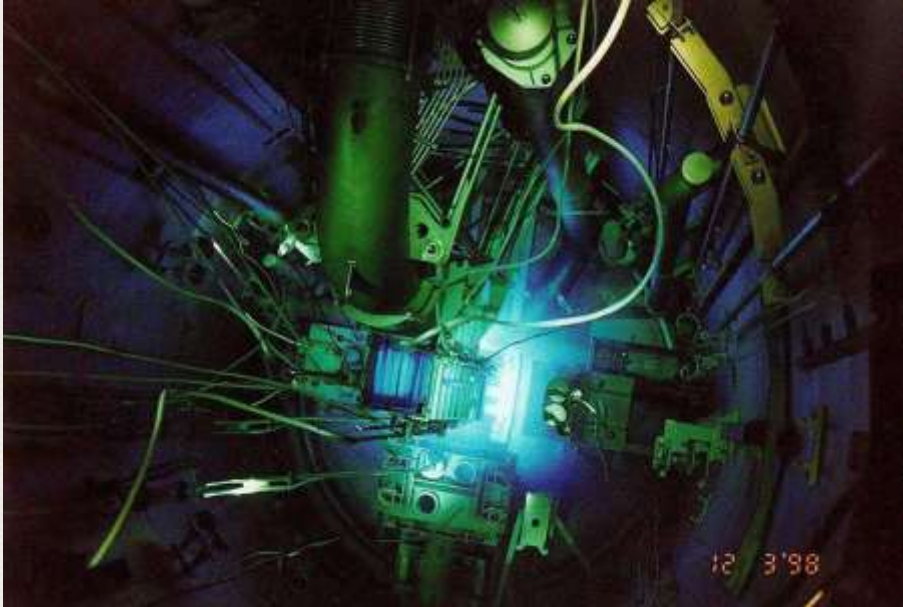
H. Abou Yehia
Research Reactor Safety Section
Division of Nuclear Installation Safety



IAEA

International Atomic Energy Agency

INSARR: Integrated Safety Assessment for Research Reactors



- To assist Member States to enhance the safety of their research reactors.
- INSARR Missions are conducted at the requests of Member States (operating organizations and regulatory bodies).



INSARR Benefits to the IAEA Member States

- Assisting in solving safety issues and enhancing the safety of research reactors;
- Exchanging of information between the team of experts and research reactors operators and regulators on safety matters;
- Improving capabilities of operators and regulators on self-assessment of safety management.

By 2011, more than 70 INSARR Missions have been implemented at research reactors worldwide.



INSARR: Review Areas (1/2)

- The selected review areas depend on the objective and the scope of the mission.
- a) **General:**
 - Regulatory supervision and licensing process;
 - Operating organization, reactor management and personnel training;
 - Emergency planning.
- b) **Nuclear Safety:**
 - Safety Analysis Report (SAR);
 - Operational Limits and Conditions (OLCs);
 - Operating procedures;
 - Maintenance, periodic testing and inspection;
 - Experiments and modifications;
 - Conduct of operations.

INSARR Review Areas (2/2)

c) Radiation protection:

- Operational radiation protection programme;
- Waste management;
- Airborne and liquid effluents;
- Radiological impact.

d) Special issues:

- Siting;
- Design;
- Commissioning;
- Major modifications;
- Decommissioning;
- Reactor ageing.

Research Reactor Safety Services information available on the IAEA website:
<http://www-ns.iaea.org/tech-areas/research-reactor-safety>

Safety enhancement plan for RRs

Implementing the safety enhancement plan for research reactors (RRs)

The Research Reactor Safety Enhancement Plan includes:

- [Conduct a Survey on the Safety of Research Reactors](#)
- [Prepare the Code of Conduct on the Safety of Research Reactors](#)
- [Explore possible means to strengthen the system for monitoring the safety of research reactors.](#)

Research reactor safety enhancement activities include:

- [Improve research reactor safety analysis, design and operations, and INSARR missions](#)
- [Incident Reporting System for Research Reactors \(IRSRR\)](#)

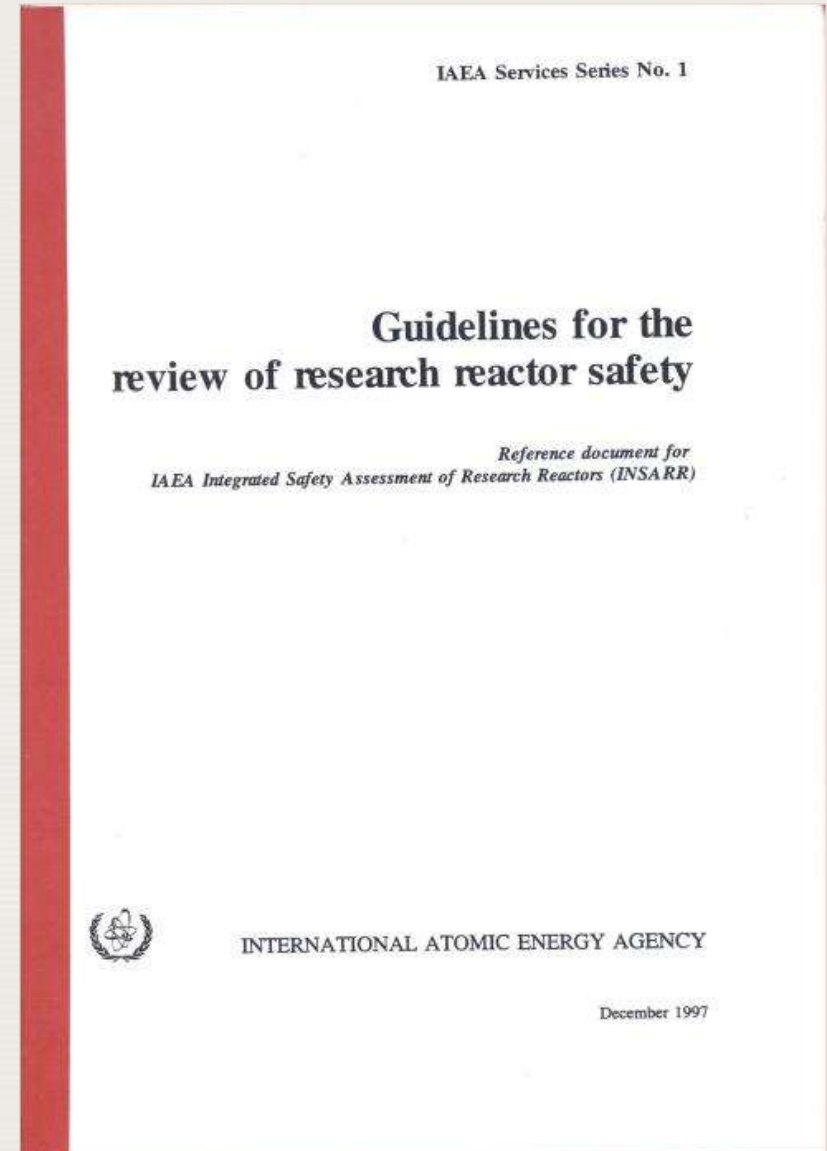
Co-ordinated Research Projects:

- [Update and expand the IAEA reliability data for Research Reactor PSAs](#)
- [Safety significance of postulated initiating events for different research reactor types and assessment of analytical tools.](#)

Related Service: [INSARR](#), [IRSRR](#)

IAEA Guidelines: Service Series No. 1

- It gives guidance on the preparation, conduct, reporting and follow-up of INSARR missions.



INSARR Mission – Stages

PRE -INSARR



INSARR



FOLLOW-UP

Duration: 2 to 3 days
Team: 1 to 2 IAEA staff
Objective: To prepare the mission
(4 to 12 months)

Duration: 1 to 2 weeks
Team: 1 to 2 IAEA staff + external experts and observers
Objective: To conduct the mission

(12 to 18 months)

Duration: Defined by the team leader
Team: Defined by the team leader
Objective: To evaluate safety improvements

Pre-INSARR Mission

- In the Pre-INSARR mission, the IAEA representatives discuss with the Counterparts the mission scope and areas to be reviewed, schedule for documents submission, possible team participants, dates and agenda and practical arrangements.

INSARR- Experts Team Selection

- The team members are selected in coordination with the Counterparts;
- The team provides a balanced international view of best practices;
- The size of the team depends on the type of facility and scope of the mission;
- The team includes at least one member who has participated in previous INSARR missions.

INSARR- Conduct of the Review (1/4)

1- Examination and assessment of safety documentation:

SAR, OLCs, operating and maintenance documents, emergency plan.



INSARR- Conduct of the Review (2/4)

2- Walk-through the facility:

To observe the technical status of safety systems and components and adherence to good operating, maintenance, and housekeeping practices.



INSARR- Conduct of the Review (3/4)

- 3- Observation of operational activities:**
Direct observation of operational and handling activities and interaction with the staff involved.

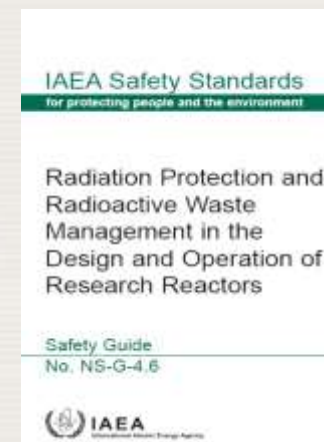
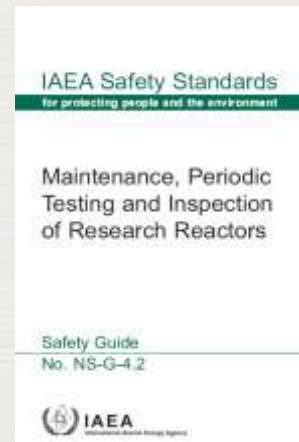
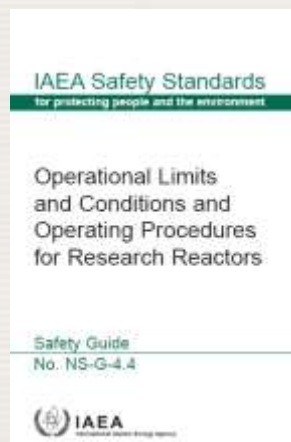
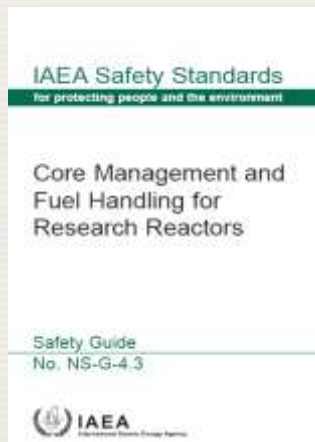
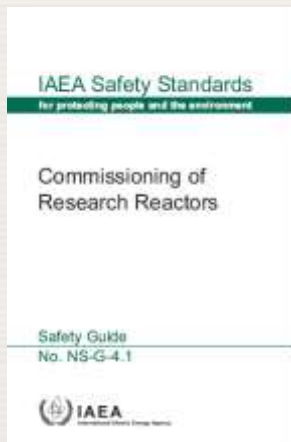
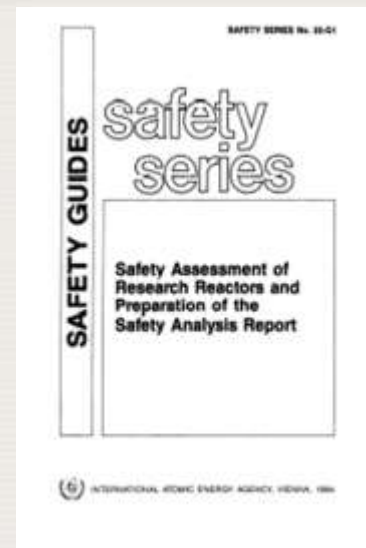
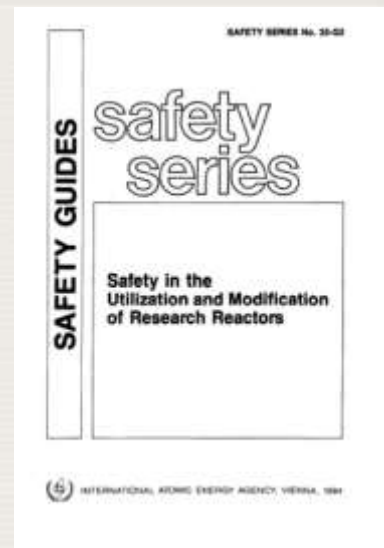
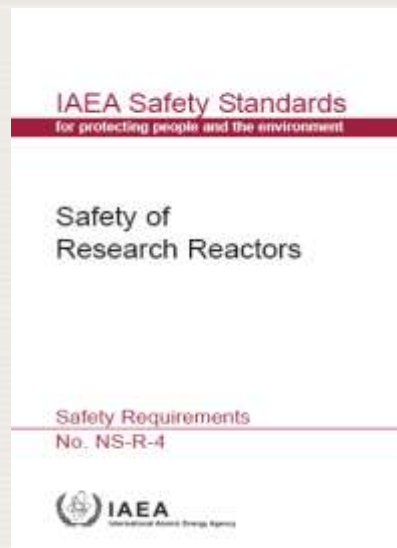


INSAAR- Conduct of the Review (4/4)

- 4- Discussions with facility personnel:**
To exchange all important information between the team members and the operating personnel.



Basis of the review



Reporting

- A draft report is presented to the host organization at the exit meeting, including the results and recommendations of the mission. The comments of the counterparts are addressed, and a final report is issued and shared only with the host organization.

Exit Meeting



The Exit Meeting of the INSARR Mission is conducted in a free and open manner so that commitment to the measures necessary to enhance safety is encouraged.

Follow-up INSARR

- The follow-up INSARR missions review the implementation of the INSARR recommendations and advice for safety improvements.
- Upon request from the Member State, assistance is provided by the IAEA in implementing the recommendations of the Main INSARR mission.

Thank you for your attention!

